

EXHIBIT F – REDACTED

**UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA**

ALEXANDRE PELLETIER, Individually
and On Behalf of All Others Similarly
Situated,

Plaintiff,

v.

ENDO INTERNATIONAL PLC, RAJIV
KANISHKA LIYANAARACHCHIE
DE SILVA, SUKETU P. UPADHYAY, AND
PAUL V. CAMPANELLI,

Defendants.

Civil Action No. 2:17-cv-05114-MMB

EXPERT REPORT OF DOUGLAS J. SKINNER

August 17, 2020

Table of Contents

I.	Qualifications, Compensation, and Materials Considered	3
A.	Qualifications	3
B.	Compensation	4
C.	Materials Considered.....	5
II.	Assignment	5
III.	Summary of Allegations.....	5
IV.	Summary of Opinions	7
V.	Background on Endo	10
VI.	There is No Evidence That Certain Alleged Corrective Disclosures Negatively Impacted Endo’s Stock Price	11
A.	Event Studies	11
B.	Select Alleged Corrective Disclosure: February 28, 2017–March 1, 2017	15
1.	February 28, 2017.....	15
2.	February 28, 2017 – March 1, 2017	26
VII.	Dr. Nye Does Not Provide a Methodology Capable of Measuring Class-Wide Damages in a Manner Consistent with Plaintiff’s Theory of Liability	28
A.	Dr. Nye’s Proposed Damages Model	28
B.	A Proposed Damages Methodology Must Reliably Measure Inflation	30
C.	Flaws in Dr. Nye’s Proposed Damages Approach	31
1.	Dr. Nye Does Not Articulate a Class-Wide Damages Methodology Capable of Measuring Damages Attributable to Plaintiff’s Theory of Liability	31
2.	Dr. Nye Fails to Articulate a Damages Methodology Capable of Isolating the Impact of Confounding Information	34
3.	The Price Decline Following the Materialization of a Risk Necessarily Overstates Inflation Caused by Concealing that Risk Earlier during the Proposed Class Period.....	36
4.	Dr. Nye Fails to Explain How His Proposed Damages Approach Would Take into Account the Time-Varying Nature of the Alleged Inflation in Endo’s Stock Price	39
5.	Dr. Nye Fails to Demonstrate How His Damages Methodology Can Be Applied Across Different Types of Investors	43

I. QUALIFICATIONS, COMPENSATION, AND MATERIALS CONSIDERED

A. Qualifications

1. I am Deputy Dean for Faculty and Eric J. Gleacher Distinguished Service Professor of Accounting at the University of Chicago, Booth School of Business. I have been a tenured full professor at the University of Chicago since 2005. Prior to my appointment at Booth, I was the KPMG Professor of Accounting at the Ross School of Business, University of Michigan, where I held tenured and tenure-track appointments from 1989 until 2005, and served as chair of the accounting department.
2. I hold a B. Econ. (First Class Honors in Accounting and Finance) from Macquarie University in Sydney, Australia and a M.S. and Ph.D. (Applied Economics: Accounting and Finance) from the University of Rochester. I have taught undergraduate upper-class students, full-time and part-time MBA students, Executive MBA (“EMBA”) students, executives, consultants, and Ph.D. students. I have taught introductory financial accounting, intermediate financial accounting, accounting for financial instruments, corporate financial reporting and analysis, financial statement analysis, managerial (cost) accounting, corporate finance, investments, valuation, and empirical methods in accounting research. Most recently, I have taught Corporate Finance and Valuation, as well as Managerial Accounting, at the University of Chicago’s EMBA program at campuses in Chicago, London, and Hong Kong.
3. My teaching experience also includes teaching at international locations in Asia (Japan, Korea, Hong Kong, Singapore) as well as in London and at the University of Melbourne, and so includes experience with international accounting rules (IFRS) as well as U.S. generally accepted accounting principles (“GAAP”).
4. I am Senior Editor of the *Journal of Accounting Research*, one of the preeminent academic accounting journals in the world. Before moving to Chicago, I was Co-Editor of the *Journal of Accounting and Economics*, also one of the world’s top-tier academic accounting journals. I have also served as editor of the *Review of Accounting Studies*, and for several terms on the editorial board of *The Accounting Review*. I am a member of the American Accounting Association and the American Finance Association. I frequently present my research at major accounting and finance conferences and at prominent universities. I have supervised doctoral students who have accepted

faculty positions at major business schools around the world, including Stanford, Harvard, Wharton, MIT, Columbia, Michigan, Yale, and Chicago.

5. I have published research on a variety of topics in accounting, auditing, capital markets, investments, and corporate finance, including how security prices respond to corporate disclosures (including event studies of earnings disclosures); managers' incentives to release or withhold their private information about corporate earnings (known as earnings "guidance"); whether the so-called earnings management practices of corporate managers can improve their firms' valuation on capital markets; how the economic incentives of various corporate claimants, such as shareholders and debtholders, affect firms' financial reporting, disclosure, and capital management decisions; how accounting information is used in contracts between the various corporate stakeholders; and the nature of corporate debt agreements.

6. My research is published in top-tier accounting and finance journals, including *The Accounting Review*, the *Journal of Accounting and Economics*, the *Journal of Accounting Research*, the *Journal of Business*, the *Journal of Finance*, and the *Journal of Financial Economics*. My research has been featured in articles in *The Wall Street Journal*, *The New York Times*, *The Financial Times*, *The Economist*, and *Business Week*.

7. I serve as an Independent Trustee and chair of the Audit Committee of Harbor Funds.

8. A copy of my curriculum vitae, including my publications, is attached as Appendix A.

9. A list of my previous expert work, including reports, depositions, and trial testimony, is attached as Appendix B.

B. Compensation

10. I am being compensated at my standard billing rate of \$850 per hour. I have been assisted in this matter by staff of Cornerstone Research, who worked under my direction. I receive compensation from Cornerstone Research based on its collected staff billings for its support of me in this matter. Neither my compensation in this matter nor my compensation from Cornerstone Research is in any way contingent or based on the content of my opinion or the outcome of this or any other matter.

C. Materials Considered

11. In preparing this report, I have relied upon my education and experience in accounting, corporate finance, valuation, and investments; documents produced in this matter;¹ publicly available information, such as academic articles, analyst reports, and public press; and other materials. Appendix C lists documents and other sources I have relied upon in forming my opinions in this matter. My work in this matter is ongoing. I may refine or revise my opinions as further information comes to light.

II. ASSIGNMENT

12. I have been retained by defense counsel for Endo International plc (“Endo” or “the Company”) and Rajiv Kanishka Liyanaarachchie De Silva, Suketu P. Upadhyay, and Paul V. Campanelli (collectively, the “Individual Defendants”) to evaluate whether Endo’s stock price was impacted by the alleged corrective disclosures at the end of the proposed Class Period, on February 28, 2017 as well as over the two-day period, February 28 – March 1, 2017.² Additionally, I have been asked to review and respond to the expert report submitted by Dr. Zachary Nye dated June 26, 2020 (the “Nye Report”). Specifically, I have been asked to evaluate whether Dr. Nye has articulated a methodology capable of reliably measuring class-wide damages in a manner consistent with Plaintiff’s remaining theory of liability in this case.

III. SUMMARY OF ALLEGATIONS

13. Based on my review of the Amended Complaint filed on August 6, 2018 (the “Complaint”), Plaintiff has alleged that Endo and certain individual defendants made false and misleading statements and omissions concerning the Company’s alleged involvement in illegal price-fixing schemes and concealed that a portion of its profits, described as “Inflated Profits” in the Complaint, were generated “solely as a result of anticompetitive price increases.”³

¹ My review included the Deposition of Dr. Zachary Nye, July 27, 2020 (“Nye Deposition”).

² The proposed Class Period extends from March 2, 2015 to February 27, 2017 (“proposed Class Period”).

³ Alexandre Pelletier, Individually and On Behalf of All Others Similarly Situated v. Endo International plc et al., Amended Complaint filed August 6, 2018 (“Complaint”), Glossary of Terms, p. vi., ¶ 4.

14. Specifically, Plaintiff has alleged that Endo made “at least three types of false and misleading statements and omissions”⁴:

- Characterizing the U.S. generic pharmaceutical market as being “subject to ‘intense competition’ on price”;⁵
- Attributing the financial performance of its generic business segment to “sustainable business practices like corporate acquisitions and new products,”⁶ and allegedly failing to disclose that the “risky and unsustainable anticompetitive activity in generic drug markets materially contributed to the income from its generics segment [...]”;⁷
- Explaining price increases on generic drugs and allegedly omitting to disclose that it “did not compete on price with other generic manufacturers [...]”⁸

15. According to the Complaint, these alleged statements or omissions were misleading for two “independent and separate” reasons:

- The statements allegedly failed to disclose that Endo was engaged in “risky and unsustainable anticompetitive activity” in generic drug markets, that such activity “materially” contributed to Endo’s generics segment income, and that Endo’s financial performance in the latter part of the proposed Class Period was “materially and negatively affected by Endo’s inability to further engage in anticompetitive activity”;⁹
- The statements allegedly failed to disclose that Endo was engaged in “an illegal agreement to fix prices, rig bids, and allocate markets for generic drugs” and thereby its generic segment profits were derived “in material part” from such illegal conduct.¹⁰

16. Plaintiff has further alleged that Endo “concealed the numerous and related risks associated with their false statements and omissions, including, but not limited to, the risks that:”¹¹

- The alleged anticompetitive pricing scheme “was highly risky and not sustainable”;

⁴ Complaint, ¶ 186.

⁵ Complaint, ¶ 186.

⁶ Complaint, ¶ 2.

⁷ Complaint, ¶ 186.

⁸ Complaint, ¶ 186.

⁹ Complaint, ¶ 186.

¹⁰ Complaint, ¶ 186.

¹¹ Complaint, ¶ 258.

- The alleged “price increases and allocation of market share might appear to arise from collusive conduct, whether proven illegal or not,” and were increasing the risk of drawing governmental attention;
- Profits from Endo’s generics segment would be “significantly reduc[ed]” because of law enforcement scrutiny;
- Profits from Endo’s generics segment would suffer “a rapid and material decline” if the alleged anticompetitive scheme ceased, or if pricing pressure or competition increased as a result.

17. Plaintiff alleges that the “truth” about the alleged misstatements was revealed through corrective disclosures on (i) November 3, 2016 and (ii) February 28, 2017 through March 1, 2017.

IV. SUMMARY OF OPINIONS

18. Based on my analysis to date, as well as my skills, knowledge, experience, education, and training, I have formed the following opinions.

19. The alleged corrective disclosures on February 28, 2017 did not negatively impact Endo’s stock price, for the following reasons:

- In an efficient market, prices quickly incorporate new information. Consequently, any impact of the alleged corrective disclosures as contained in Endo’s press release, Form 8-K, and earnings call, all of which were publicly available before the start of trading on February 28, 2017, should have been impounded in Endo’s stock price by the end of that day.
- Endo’s stock price *increased* by 2.67% on February 28, 2017, from \$13.29 at market close on February 27 to \$13.65 at market close on February 28. Based on my event study analysis, there is no evidence of a statistically significant stock price decline on this day. Dr. Nye’s event study model generates the same result. In fact, under some models the abnormal return on February 28 is *positive* and statistically significant.
- The fact that there was no statistically significant stock price decline on this day is not surprising because analysts had discussed the pricing erosion in Endo’s U.S. generics base throughout 2016 and early 2017, and saw the financial results released by Endo on February 28, 2017 as largely consistent with information the Company had previously disclosed. Analysts viewed these results positively, as Endo beat analyst expectations. And while the full-year 2017 guidance Endo announced was generally seen as mixed or negative, it was consistent with analysts’ already reduced expectations and did not meaningfully alter their views about Endo. Furthermore, there was no positive, non-allegation related news that could have offset what would otherwise have been a statistically significant negative price impact on this date.
- Plaintiff claims that the impairment charge announced on February 28, 2017 was a recognition of the unraveling of Endo’s alleged anticompetitive pricing scheme. However, few analysts commented on the impairment charge and those who did viewed

it as a result of the known developments in Endo's generics business. Moreover, none of the analyst reports I reviewed saw the financial results Endo announced on this day as being attributable to continued pricing pressure due to the alleged "end of the anticompetitive scheme."

- There is no evidence that any new, allegation-related information was disclosed in the Form 10-K Endo filed on March 1, 2017 or that the Form 10-K affected market expectations in any meaningful way. If, as Dr. Nye claims, Endo's stock traded in an efficient market, *all* of the information in the February 28–March 1, 2017 alleged corrective disclosures should have been incorporated into Endo's stock price on February 28, 2017.
- Nevertheless, while the use of a two-day event window contradicts market efficiency and so is inconsistent with well-established event study methodology, the two-day abnormal return for February 28–March 1, 2017 is *not* negative and statistically significant.

20. Dr. Nye proposes to measure inflation by (1) using an event study to analyze the price change on the dates of the alleged corrective disclosures to isolate the price impact of the alleged misrepresentations, and (2) applying this measure of price inflation to each day during the proposed Class Period, a method referred to as back-casting.¹² Dr. Nye's proposed damages approach does not and cannot reliably measure inflation over the proposed Class Period for the following reasons, any one of which is sufficient to render it inadequate:

- Dr. Nye fails to present a methodology that could reliably apportion any stock price decline attributable to the purportedly corrective disclosures between Plaintiff's two "independent and separate" theories of liability (I understand from counsel that, based on the Court's Motion to Dismiss ruling, only one of the two theories remains),¹³ or that could reliably translate those amounts into daily measures of price inflation during the proposed Class Period.

Instead, Dr. Nye vaguely alludes to the use of an event study, which can only ever measure the overall price effect of all of the information revealed during a given event window (often a

¹² Nye Deposition, 137:14–137:20; Nye Report, ¶ 60.

¹³ Complaint, ¶ 186; Memorandum and Order, Alexandre Pelletier et al v. Endo International PLC et al., 2:17-cv-5114-MMB (E.D. Pa., February 14, 2020) ("Memorandum and Order"), pp. 17, 23.

¹⁴ Nye Deposition, 146:19–146:21.

¹⁵ Nye Deposition, 147:10–15.

trading day). Further, an event study cannot be used to measure the price reaction to the same information disclosed at a different point in time or under different circumstances.

- Dr. Nye asserts that “[a]n event study can be used to isolate Company-specific price movement caused by the revelation of true facts related to the alleged fraud from price movement caused by other factors,” including “*the dissemination of material, non-fraud-related, Company-specific information.*”¹⁶ However, Dr. Nye does not explain how his event study would isolate the impact of such confounding information. An event study is simply not designed to identify the price impact of an individual piece of information when multiple pieces of information become publicly available within a given window, a limitation that is widely understood in the academic literature.

These valuation models are really just broad *approaches*, each of which requires significant judgement and can be implemented in a variety of ways, as opposed to being clearly specified methods.

- Dr. Nye claims that “[p]rice inflation may be measured on a Class-wide basis by analyzing the change in a security’s price caused by a corrective disclosure and/or the materialization of a concealed risk.”¹⁸ Plaintiff argues that the alleged corrective disclosures revealed “numerous and related risks.”¹⁹ To the extent that such risks were allegedly concealed or understated during the proposed Class Period and resulted in artificial inflation in Endo’s stock price, such inflation cannot be measured by Endo’s price reactions when such risks materialized.

Furthermore, Dr. Nye does not offer a methodology that can correctly account for the inflation associated with an allegedly concealed or understated risk whose materialization was not foreseeable with a certainty.

- The simplistic back-casting approach proposed by Dr. Nye cannot properly account for the time-varying nature of the alleged inflation in Endo’s stock price. Endo’s business focus changed and its leverage (and so the riskiness of its stock) increased considerably during the course of the proposed Class Period. Dr. Nye fails to consider evidence that Endo changed systematically during the proposed Class Period, and that these changes

¹⁶ Nye Report, ¶ 60. Emphasis added.

¹⁷ Nye Deposition, 158:8–158:12; 158:19–158:22.

¹⁸ Nye Report, ¶ 60.

¹⁹ Complaint, ¶ 258.

²⁰ Nye Deposition 126:22–126:22.

²¹ Nye Deposition 134:1.

have direct implications for how Endo's stock price would have reacted to the alleged corrective disclosures had they been made earlier in the proposed Class Period.

- Plaintiff also alleges that Endo's anticompetitive pricing behavior—and, by extension, its effects on Endo's profitability—varied over the course of the proposed Class Period. For example, according to the Complaint, while some of the alleged price fixing occurred before the proposed Class Period, at least two out of thirteen generic products with alleged inflated profits (Butalbital/Acet/Caff and Phenobarbital Tablets) were subject to price increases after the beginning of that Period.²² The manner in which Endo's allegedly inflated profits varied during the proposed Class Period, increasing through third-quarter 2015 and decreasing in each quarter thereafter, is clearly shown in the Complaint.²³ Therefore, by Plaintiff's own argument, inflation would have changed over time as different products generated "inflated profits" at different point in time, or as the extent of Endo's alleged anticompetitive practices changed over time. Further, Dr. Nye fails to consider how the Par acquisition, which was partly financed through the issuance of what would allegedly have been inflated Endo shares, may have impacted the alleged inflation in Endo's stock price, a complicated exercise in its own right.
- Dr. Nye fails to consider differences among the investment approaches and risk preferences of Endo investors, or how those investors' investment decisions would have changed in the absence of the alleged misrepresentations. Consequently, Dr. Nye has not demonstrated that his proposed methodology can be applied on a class-wide basis.

V. BACKGROUND ON ENDO

21. Endo is an Ireland-domiciled generics and specialty pharmaceutical company with common shares traded on the NASDAQ Global Market ("NASDAQ") under ticker ENDP.²⁴ During most of the proposed Class Period, Endo operated three business segments: US Generic Pharmaceuticals, US Branded Pharmaceuticals, and International Pharmaceuticals.²⁵ Endo acquired Par Pharmaceutical Holdings, Inc. ("Par"), a generics manufacturer, on September 25, 2015.²⁶

²² Complaint, ¶¶ 116, 120.

²³ For example, see the chart presented in the Complaint, ¶ 85.

²⁴ Endo International plc, Form 10-K for fiscal year 2016, filed on March 1, 2017 ("Endo 2016 10-K"), p. 2. Endo's common shares also traded on the Toronto Stock Exchange during the proposed Class Period.

²⁵ Endo 2016 10-K, p. 2; Endo International plc, Form 10-K for fiscal 2015, filed on February 29, 2016 ("Endo 2015 10-K"), p. 2.

²⁶ Endo 2016 10-K, p. 2. Endo's U.S. Generic Pharmaceuticals segment "was formed through a series of acquisitions including Par, Generics International (US Parent), Inc. (formerly doing business as Qualitest Pharmaceuticals (Qualitest)), Boca Pharmacal LLC (Boca) and DAVA Pharmaceuticals, Inc. (DAVA) [...]"

22. Paul V. Campanelli was appointed as the Company's President and CEO on September 23, 2016²⁷ and began "a comprehensive strategic review that resulted in a series of definitive actions," such as (i) streamlining Endo's global supply chain and restructuring its pain franchise, including the divestiture of BELBUCA,²⁸ (ii) executing a corporate restructuring,²⁹ and (iii) divesting non-core as such as Litha Healthcare Group Limited ("Litha").³⁰ The goal of these actions was to allow Endo "to focus on its core assets, drive margin expansion and de-lever over a period of time [...]"³¹

23. By the end of the proposed Class Period, U.S. Generics was Endo's largest segment, representing approximately 70% of its revenues (first-quarter 2017),³² and consisted of "a portfolio of over 250 generic prescription product families,"³³ that included the U.S. Generics Base, Sterile Injectables, and New Launches and Alternative Dosages.³⁴ The U.S. Generics Base was "comprised of more than 200 solid oral-extended release, solid oral-immediate release and pain/controlled substances products."³⁵

VI. THERE IS NO EVIDENCE THAT CERTAIN ALLEGED CORRECTIVE DISCLOSURES NEGATIVELY IMPACTED ENDO'S STOCK PRICE

A. Event Studies

24. The goal of event studies is to use financial market data to isolate the economic impact of a company-specific event, such as a press release or financial restatement, on securities prices. This

²⁷ Endo 2016 10-K, p. 21.

²⁸ "Endo Reports Fourth-Quarter And Full-Year 2016 Financial Results," PRNewswire, February 28, 2017, <https://www.prnewswire.com/news-releases/endo-reports-fourth-quarter-and-full-year-2016-financial-results-300414600.html>, accessed on August 3, 2020 ("Endo Press Release, February 28, 2017").

²⁹ Endo Press Release, February 28, 2017, p. 2.

³⁰ Endo Press Release, February 28, 2017, p. 2. Litha's divestiture was announced on February 28, 2017.

³¹ Endo Press Release, February 28, 2017, p. 2.

³² Endo International plc, Form 10-Q for the Quarter Ended March 31, 2017, filed on May 9, 2017, p. 12.

³³ Endo 2016 10-K, p. 7.

³⁴ Endo 2016 10-K, p. 8.

³⁵ Endo 2016 10-K, p. 8.

approach is well accepted in the literature.³⁶ In an efficient market, event studies can be used to measure the price impact (if any) of new public information.

25. To assess whether a disclosure (the “event”) has a significant effect on stock prices, an event study compares the actual stock return on the event date to an estimate of what that return would have been absent the disclosure. To do this, the event study must account for other factors that affect the returns of a particular security, such as overall market movements and industry news. This is typically done by estimating the normal relationship between the security’s returns and market and industry returns during an “estimation period,” which allows the researcher to compute an “abnormal return” on the event date (which equals the stock’s actual return minus a “normal” or “predicted” return that accounts for the effect of these other factors on that day). Once this is done, the researcher performs a statistical analysis to assess whether this abnormal return is statistically significant.³⁷

26. Statistically significant abnormal returns during a given event window can be interpreted as indicating significant changes in the *total mix* of public information regarding the company during that event window. Abnormal returns that are not statistically significant cannot be reliably attributed to any information regarding the company, as they cannot be distinguished from the typical price fluctuations of the company in the absence of new information.

27. Event study analysis is subject to certain limitations. First, an event study can only ever measure the aggregate price impact of *all* of the new information revealed during the event window;

³⁶ For example, Campbell, J., Lo, A., and MacKinlay, A., “Event-Study Analysis,” *The Econometrics of Financial Markets*, Princeton University Press, 1997 (“Campbell, Lo, and MacKinlay (1997)”), p. 149, states that “[t]he usefulness of [event studies] comes from the fact that, given rationality in the marketplace, the effect of an event will be reflected immediately in asset prices. Thus the event’s economic impact can be measured using asset prices observed over a relatively short time period.”

³⁷ This involves computing a t-statistic, which is the ratio of the measured abnormal return to its standard error. In the typical event study, the standard error is estimated based on the normal volatility of the abnormal returns computed during the estimation period. A sufficiently large (in absolute value) t-statistic allows one to reject the null hypothesis and conclude that the abnormal return is statistically significant. Detailed discussions of event study methodology can be found in Campbell, Lo, and MacKinlay (1997), Chapter 4, and in Kothari, S.P. and Warner, J.B., “Econometrics of Event Studies,” in *Handbook of Corporate Finance: Empirical Corporate Finance Volume 1*, B. Eckbo, 1st ed., Elsevier, 2007, pp. 5–36. The size of the t-statistic necessary to establish statistical significance depends on the degrees of freedom (which is based on the number of observations used for estimation and the complexity of the model being estimated) as well as the relevant “p-value” (confidence level) for the test. See, for example, Dielman, T.E., *Applied Regression Analysis*, 4th ed., South-Western, 2005, pp. 80–84. Like Dr. Nye, I use a 95% confidence interval (5% confidence level) to assess statistical significance in this report.

it cannot reliably apportion this price impact to individual pieces of information disclosed during a common window. Second, an event study measures the market reaction to the total mix of new information when that information is actually released to the market; it cannot reliably measure the price impact of that same information disclosed at a different time or under different circumstances, or to evaluate the price reaction to different information.

28. For my event study analyses in this matter, I used total (including dividends) returns on (1) the NASDAQ Composite Index,³⁸ to proxy for returns on the market portfolio, and (2) an industry index, constructed from the set of publicly-traded companies that Endo lists as competitors in its Form 10-K filings,³⁹ to proxy for industry returns. To ensure my conclusions are robust to the weighting approach, I estimated models that used both equal- and value-weighted versions of this industry index. I report results for both approaches, with results based on the equal-weighted index

³⁸ The NASDAQ Composite Index “measures all NASDAQ domestic and international based common type stocks listed on The NASDAQ Stock Market.” “NASDAQ Composite,” *NASDAQ*, <https://indexes.nasdaqomx.com/Index/Overview/COMP>, accessed on July 31, 2020. Endo was listed on the NASDAQ Global Market throughout the proposed Class Period. Endo International plc, Form 10-K for fiscal year 2014, filed on March 2, 2015 (“Endo 2014 10-K”), p. 3; Endo 2015 10-K, p. 3; Endo 2016 10-K, p. 3; Endo International plc, Form 10-K for fiscal year 2017, filed on February 27, 2018 (“Endo 2017 10-K”), p. 1. Specifically, I use the NASDAQ Composite Total Return Index (“The total return index values include reinvestment of all cash distributions of index members on the ex-date. The total return index value of each index is calculated daily and shows the price appreciation or depreciation plus dividend yield of the component securities. It is equal to the previous day index value multiplied by the ratio of current price return index value plus cash distributions value to the previous day closing price return index value. The cash distribution value is determined by multiplying the value of each cash distribution on the ex-date by the security’s index shares and dividing that value by the divisor of the price return index.” “NASDAQ Total Returns,” *NASDAQ*, <https://www.nasdaq.com/market-activity/total-returns>, accessed on July 31, 2020. I note that using the S&P 500 Total Return Index instead of the NASDAQ Composite Index to adjust for market factors does not change the conclusions of my price impact analysis. The S&P 500 index measures “the performance of the large-cap segment of the market. Considered to be a proxy of the U.S. equity market, the index is composed of 500 constituent companies.” The Total Return version of this index “reinvest[s] regular cash dividends at the close on the ex-date without consideration for withholding taxes.” “S&P US Indices Methodology,” *S&P Dow Jones Indices*, May 2020, <https://us.spindices.com/documents/methodologies/methodology-sp-us-indices.pdf>, accessed on July 31, 2020.

³⁹ Based on Endo’s 2014 – 2017 Form 10-K filings, I include the following companies in the industry index: Abbott Laboratories, Actavis Pharmaceutical, Inc., Allergan, Horizon Pharma, Impax Laboratories, Inc. (currently Amneal Pharmaceuticals), Jazz Pharmaceuticals, Johnson & Johnson, Mallinckrodt, Mylan, Pfizer, Shire, Teva Pharmaceuticals, Bausch Health Companies (formerly Valeant Pharmaceuticals International). Endo 2014 10-K, p. 12; Endo 2015 10-K, pp. 11–12; Endo 2016 10-K, pp. 11–12; Endo 2017 10-K, p. 7.

reported as primary results.⁴⁰ I estimated abnormal log returns⁴¹ using “rolling” market model regressions estimated over the 252-trading day period ending the trading day prior to February 28, 2017.⁴² I used indicator variables to remove days associated with alleged misrepresentations, omissions, and corrective disclosures from the estimation period because, under Plaintiff’s arguments, returns on those days may be distorted.⁴³

29. I also reviewed public press and analyst reports⁴⁴ around the relevant days to determine if there was any potentially confounding information that could have affected the stock price reaction on these days, and to assess commentary by market participants. Specifically, I reviewed public press articles from the trading day before February 28, 2017 through March 1, 2017, and analyst

⁴⁰ Because Endo is a specialized pharmaceutical company with a significant presence in generics, it is more appropriate to use an index that includes its direct competitors than to use a broad-based index that tracks the sector as a whole (though using a broad-based index such as the one Dr. Nye used does not change my conclusions, as discussed in this section). Further, because Endo is smaller than many companies in the sector (e.g., in fiscal year 2016 Endo’s revenue was \$4.0 billion, much smaller than the median revenue of \$11.1 billion for the competitors it lists in its Form 10-K for that year), an equal-weighted industry index is more representative of the set of firms it includes, whereas a value-weighted index can be dominated by a few very large companies. Endo 2016 10-K, p. 48. See work-paper 1. The use of an equal-weighted index is supported by peer-reviewed academic literature. For example, Langetieg, T. C. (1978), “An Application of a Three-Factor Performance Index to Measure Stockholder Gains from Merger,” *Journal of Financial Economics*, 6(4), 365–383; Langetieg, T. C., Haugen, R. A., and Wichern, D. W. (1980) “Merger and Stockholder Risk,” *Journal of Financial and Quantitative Analysis*, 15(3), 689–717; Collins, D.W., Rozeff, M.S., and Dhaliwal, D.S. (1981) “The Economic Determinants of the Market Reaction to Proposed Mandatory Accounting Changes in the Oil and Gas Industry, A Cross-Sectional Analysis,” *Journal of Accounting and Economics*, 3(1), 37–71. My inferences are not significantly affected by the choice of an equal- or value-weighted index.

⁴¹ Continuously compounded (log) returns are standard in the academic literature. See, e.g., Campbell, Lo, and MacKinlay (1997), p. 11.

⁴² For each event day, the estimation window is 252 trading days ending one trading day prior to that day. I find that the conclusions of my price impact analysis do not change if I use an estimation period equal to 126 days prior to the day of interest.

⁴³ In regression analysis, an indicator variable is a variable that takes the value 0 or 1 to indicate the absence or presence of an effect that may be expected to impact the model parameter estimates. See, for example, Chatterjee, S. and Simonoff, J.S., *Handbook of Regression Analysis*, John Wiley & Sons, Inc., 2013, (“Handbook of Regression Analysis (2013)”), pp. 38–39. I used indicator variable for the following dates: March 2, 2015, March 3, 2015, May 11, 2015, May 12, 2015, May 18, 2015, August 10, 2015, August 11, 2015, November 5, 2015, November 9, 2015, January 12, 2016, February 29, 2016, March 1, 2016, May 6, 2016, May 9, 2016, August 9, 2016, November 3, 2016, and November 8, 2016. The Complaint claims that Defendants were “motivated to make false statements and omissions to inflate the price of Endo stock” and that the alleged corrective disclosures drove down Endo shares. Complaint, ¶¶ 82, 87, 237, 262, 265.

⁴⁴ For public press, I searched the *Factiva* database and *Bloomberg Law* for articles mentioning Endo in the full body of text as well as select additional public press articles that were relevant to the allegations or other events on a given day. For analyst reports, I considered analyst reports provided by counsel or included in Dr. Nye’s production, as well as additional analyst reports purchased from *S&P Capital IQ* or *Thomson Reuters*.

reports from the trading day before February 28, 2017 through five trading days after March 1, 2017.

30. Based on the analyses described below, Endo's stock price was *not* negatively impacted by the alleged corrective disclosures on these dates.

B. Select Alleged Corrective Disclosure: February 28, 2017–March 1, 2017

1. February 28, 2017

31. According to Plaintiff, “[o]n February 28, 2017, before the start of trading, Endo announced its financial results for Q4 and full-year 2016 in a Form 8-K dated that day.”⁴⁵ Plaintiff alleges that the impairment charge announced on February 28, 2017 was “recognition” of the fact that Endo’s alleged anticompetitive practices had collapsed, stating that “Defendants had to face the reality that now that Endo was a target of law enforcement, and [...] the Inflated Profits were never coming back.”⁴⁶ Furthermore, Plaintiff asserts that “because of continued pricing pressure due to the end of the anticompetitive scheme, the Company anticipated making approximately \$1 billion less in 2017 than in 2016[.]”⁴⁷

(a) Endo’s Stock Price Did Not Decline on February 28, 2017

32. Endo reported fourth-quarter and full-year 2016 financial results before the market open on February 28, 2017.⁴⁸ Specifically, Endo issued a press release that reported its financial results and

⁴⁵ Complaint, ¶ 84.

⁴⁶ Complaint, ¶ 86.

⁴⁷ Complaint, ¶ 264.

⁴⁸ Endo’s press release contained detailed reporting and discussion of its results: (i) fourth-quarter 2016 revenues of \$1,242 million and full-year 2016 revenues of \$4,010 million, (ii) \$3.5 billion of “asset impairment charges in fourth-quarter 2016 associated with the write-down of goodwill and intangible assets primarily related to the Company’s Generics reporting unit,” (iii) fourth-quarter reported diluted GAAP loss of \$14.96 per share and full-year 2016 \$14.48 diluted GAAP loss per share, (iv) fourth-quarter adjusted diluted earnings per share of \$1.77 (“EPS”) and full-year 2016 adjusted diluted EPS of \$4.73. The Company also provided guidance for Fiscal Year 2017 including: (i) 2017 revenues expected to range from \$3.45 billion to \$3.60 billion and (ii) adjusted 2017 EBITDA expected to range from \$1.50 billion to \$1.58 billion. Endo also announced the divestiture of Litha Healthcare Group for \$100 million. Endo Press Release, February 28, 2017.

provided 2017 guidance at 5:30 AM ET, filed a Form 8-K at 6:59 AM ET, and held an earnings call with analysts that began at 8:30 AM ET.⁴⁹

33. Plaintiff does not examine Endo's stock price change on February 28, 2017. Rather, Plaintiff claims that the release of this news, along with Endo's Form 10-K filing on March 1, 2017—which, as I discuss in more detail below, does not provide any new, allegation-related information—led to a two-day stock price decline between “the close of trading on February 27, 2017 and the close of trading on March 1, 2017[.]”⁵⁰ However, if Endo's stock traded in an efficient market, as Dr. Nye claims,⁵¹ any impact of the February 28, 2017 press release and earnings call should have been impounded in Endo's stock price by the end of the trading day on February 28, 2017.

34. Well-established academic literature shows that in efficient markets, prices incorporate information within just a few minutes.⁵² This is especially true for events such as earnings announcements, which typically occur on a regular schedule tied to filing deadlines required by the

⁴⁹ According to PRNewswire, the press release was made available at 5:30 AM ET, Endo Press Release, February 28, 2017. The Form 8-K time is based on the “Accepted” time reflected on SEC's Edgar website. “Filing Detail,” SEC, <https://www.sec.gov/Archives/edgar/data/1593034/000159303417000005/0001593034-17-000005-index.htm> accessed on July 13, 2020. The edited earnings call transcript is made available by Thomson Reuters STREETEVENTS: “ENDP - Q4 2016 Endo International PLC Earnings Call,” Thomson Reuters STREETEVENTS, February 28, 2017, 1:30 PM GMT (8:30 AM ET) (“Endo Earnings Call, February 28, 2017”).

⁵⁰ Complaint, ¶ 265.

⁵¹ Nye Report, ¶ 6.

⁵² Greene and Watts (1996) find that price adjusts rapidly over the first post-announcement half hour on both the NYSE and NASDAQ exchanges. Greene, J. and Watts, S. (1996), “Price Discovery on the NYSE and the NASDAQ: The Case of Overnight and Daytime News Releases,” *Financial Management*, 25(1), 19–42. “We examine the market response to quarterly earnings announcements made during trading and non-trading hours on the NYSE and the NASDAQ. For non-trading-hours announcements, the opening trade on the NYSE impounds most of the price response, whereas for trading-hours announcements, the response is spread evenly over the first several post-announcement trades. In contrast, the first post-announcement trade on the NASDAQ impounds most of the price response regardless of announcement time. [...] Thus, transaction time analysis indicates some differences in price discovery; however, when clock time is considered, price adjusts rapidly over the first post-announcement half hour for both types of announcements on both exchanges.” Multiple other research papers show that stock prices react to news rapidly. For example, Barclay and Litzenberger (1988) examine intraday stock price reactions in response to announcements of new equity issuances. Barclay, M. and Litzenberger, R. (1988), “Announcement Effects of New Equity Issues and the Use of Intraday Price Data,” *Journal of Financial Economics*, 21(1), 71–99. The authors find that during the 15-minute window following the announcement of a new equity issuance, the stock price of the issuing company drops by an average of 1.3%. Busse and Greene (2002) examine the intraday response times of stock prices to company-relevant news featured on a financial news channel. Busse, J. and Green, T. (2002), “Market Efficiency in Real Time,” *Journal of Financial Economics*, 65(3), 415–437 at p. 435. The authors find that, with rapid dissemination of information and fast, low-cost trade execution, stock prices begin responding within seconds of the company-relevant news appearing on the news channel, and fully respond within a few minutes of the coverage.

SEC for the associated Form 10-Q and 10-K filings.⁵³ In fact, most companies, including Endo, schedule earnings announcement in advance, so analysts and other market participants know when they will occur.⁵⁴ [REDACTED]

[REDACTED]⁵⁵ Dr. Nye selected earnings announcements for part of his market efficiency analysis, and used the “first trading day on which the information disclosed could have impacted the market price”⁵⁶ as the impact date.

35. [REDACTED]

⁵³ Publicly-traded domestic issuers are required to submit “annual reports on Form 10-K, quarterly reports on Form 10-Q and current reports on Form 8-K for a number of specified events[.]” The Form 10-Q, which contains unaudited financial statements, “must be filed for each of the first three fiscal quarters of the company’s fiscal year.” The deadline for filing is between 40 and 45 days (after the end of the fiscal quarter), depending on the filer. The Form 10-K, which “provides a comprehensive overview of the company’s business and financial condition and includes audited financial statements,” must be filed annually. The deadline for filing is between 60 and 90 days (after the end of the fiscal year), depending on the filer. “Form 10-K,” SEC, <https://www.sec.gov/fast-answers/answers-form10k.htm>, accessed on August 5, 2020; “Form 10-Q,” SEC, <https://www.sec.gov/fast-answers/answers-form10q.htm>, accessed on August 5, 2020.

[REDACTED] Nye Deposition, 40:24–41:3.

⁵⁴ Johnson, T. and So, E. (2018) “Time Will Tell: Information in the Timing of Scheduled Earnings News,” *Journal of Financial and Quantitative Analysis* 53(6), 2431–2464. For example, Endo announced on February 13, 2017 that it “will announce its fourth-quarter and full-year 2016 financial results and provide an update on its ongoing corporate strategic review on February 28, 2017. Members of its senior management team will host a conference call and webcast before the U.S. financial markets open at 8:30 a.m. ET.” “Endo to Announce Fourth-Quarter and Full-Year 2016 Financial Results,” *PRNewswire*, February 13, 2017, <https://www.prnewswire.com/news-releases/endo-to-announce-fourth-quarter-and-full-year-2016-financial-results-300406024.html>, accessed on August 13, 2020.

⁵⁵ [REDACTED]

[REDACTED] Nye Deposition, 7:7–8:6; 38:15–39:2.

⁵⁶ Nye Report, Appendix A, ¶ 66.

⁵⁷ Nye Deposition, 9:20–9:21.

⁵⁸ Nye Deposition, 9:20–9:21; 36:21–37:5.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

⁶⁰ As discussed in VI.B.2 below, I did not find that Endo’s March 1, 2017 Form 10-K disclosures provided any meaningful new allegation-related information; similarly, I did not find that analyst reports issued on March 1, 2017 provided any meaningfully different allegation-related commentary from those issued on February 28, 2017. Hence, I examine Endo’s stock price movement on February 28, 2017 to assess whether the alleged corrective information released in Endo’s Form 8-K, press release, and earnings call, all of which were released before the market open on February 28, 2017, impacted Endo’s stock price.⁶¹

36. If one accepts Plaintiff’s contention that Endo’s February 28, 2017 disclosures made “[i]nvestors, news media and analysts, finally aware of the true financial condition and value of Endo’s generic business” and “effectively g[i]ve up on Endo for the foreseeable future,”⁶² then February 28, 2017 should be associated with a statistically significant decrease in the price of Endo common stock. However, to the contrary, Endo’s stock price actually *increased* that day, from

⁵⁹ Nye Deposition, 9: 17–23; 36:21–37:5.

⁶⁰ Nye Deposition, 34:8–35:15.

⁶¹ The use of a single event day in event studies is well established in the academic literature and has been for many years. Nobel laureate Eugene Fama observes “[w]hen the announcement of an event can be dated to the day, daily data allow precise measurement of the speed of price response—the central issue for market efficiency [...] The typical result in event studies on daily data is that, on average, stock prices seem to adjust within a day to event announcements. This result is so common that this work now devotes little space to market efficiency.” Fama, E. (1991), “Efficient Capital Markets: II,” *The Journal of Finance*, 46(5), 1575–1617, p. 1601. Note that this was written nearly 30 years ago. Because we can now identify not only the date but also the *time* when news becomes publicly available, it is even more strongly evident that the appropriate event window is a single trading day. Campbell, Lo, and MacKinlay also take a one-day announcement period. Shorter windows allow for more powerful tests because they reduce the possibility that confounding information affects the stock price during the event window. Campbell, Lo, and MacKinlay (1997), p. 151.

⁶² Complaint, ¶ 266.

\$13.29 at market close on February 27, 2017 to \$13.65 at market close on February 28, 2017.⁶³ Furthermore, based on my event study, Endo's abnormal return on February 28, 2017 was positive (8.02%) and statistically significant at the 5% level, suggesting that the information disclosed on February 28, 2017 had a *positive* impact on Endo's stock price.⁶⁴ The abnormal return is not statistically significant under Dr. Nye's model and is either insignificant or positive and statistically significant under the alternative models that I estimated.^{65,66} Consequently, there is no evidence that Endo's stock price was negatively impacted by the purportedly corrective disclosures on February 28, 2017.

(b) Analysts Viewed Endo's Financial Results Released on February 28, 2017 As Largely Consistent with Information Previously Disclosed to the Market

37. The fact that there was no statistically significant stock price decline on February 28, 2017 is not surprising in light of market commentary both before and on this date. In particular, contemporaneous analyst commentary indicates that qualitative aspects of Endo's financial results as conveyed by the alleged corrective disclosures were not considered by analysts to be surprising or new, and that the earnings news and guidance updates were either not surprising or viewed

⁶³ Endo Stock Prices are obtained from *Refinitiv Thomson Reuters Eikon*.

⁶⁴ Some analysts commented on the positive stock price response on February 28, and saw it as consistent with their assessment of the news announced by the Company that day, as detailed below in Section VI.B.1 (b).

⁶⁵ Dr. Nye describes his event study methodology in Appendix A of his report and reports his event study analyses in Exhibits 11A, 11B, and 12. Dr. Nye estimates a rolling regression and reports abnormal returns (with t-statistics) for each trading day from the beginning of the proposed Class Period (March 2, 2015) through the end of the proposed Class Period (February 27, 2017), including eight impact dates on which Endo released quarterly or annual earnings. According to Dr. Nye's report, the impact date is "the first trading day on which the information disclosed could have impacted the market price." The "control period" for each of these event dates is the calendar year immediately preceding the impact date, excluding any impact dates during the control period. In his regression model, Dr. Nye uses the S&P 500 and the NASDAQ Biotechnology Index to account for market and industry factors, respectively. (Nye Report, Appendix A, ¶¶ 66, 67) Note that Dr. Nye does not remove Endo from the industry index, as he should. See, Langetieg, T. (1978), "An Application of a Three-Factor Performance Index to Measure Stockholder Gains from Merger," *Journal of Financial Economics*, 6, 365–383; Langetieg, T., Haugen, R., and Wichern, D. (1980), "Merger and Stockholder Risk," *The Journal of Financial and Quantitative Analysis*, 15(3), 1980, 689–717. I repeated Dr. Nye's analysis by extending his rolling regression model to estimate the abnormal return on February 28, 2017. When I do so, I find that, under Dr. Nye's regression specification, the abnormal return is positive (3.18%) but *not* statistically significant. Dr. Nye's Backup Materials.

⁶⁶ I estimated specifications that used the S&P 500 in place of the NASDAQ Composite to proxy for the market portfolio, that use value-weighted versions of the industry index described earlier (see ¶ 28), and that use estimation windows of different lengths (126 and 252 trading days). My conclusion that there is not a negative and statistically significant return on this date is robust to all of these different model specifications.

positively. Endo had previously disclosed—months earlier—that it was experiencing (and would continue to experience) pricing pressures and an expected erosion of its U.S. generics business, that such erosion could result in impairment charges, and that these negative trends would likely extend into 2017.⁶⁷ I understand that Plaintiff has not alleged that those disclosures were corrective of any previously concealed information.

38. As explained below, many analysts had already incorporated these adverse trends into their forecasts, and the fourth-quarter 2016 and full year 2016 results announced on February 28, 2017 were in fact viewed positively, as Endo beat analyst expectations. The Company's announced guidance for 2017 was generally seen as mixed or negative news but did not meaningfully alter analysts' outlook or views about the Company.

39. In fact, the price erosion in Endo's generics base was part of a continued trend that had begun in late 2015, and price erosion due to pricing and competitive pressures was discussed in Endo's earnings release throughout 2016 and commented on by almost all analysts.⁶⁸ As Dr. Nye documents in his Exhibit 12, as early as May 6, 2016, JP Morgan observed that "Endo attributed the ~30% decline in the legacy Qualitest business to declining price and volumes on a mix of incremental competition to a number of key products as well as a more a challenging consortium

⁶⁷ "4Q Wrap-Up: Modest Sales Beat, But Lowering Ests on Pessimistic '17 Guide," *Leerink*, February 28, 2017, p. 1; "2017 a transition year," *Deutsche Bank*, March 2, 2017, p. 1; "Specialty Pharma / Generics: 4Q16 Wrap Up: Challenging Environment Persists; MYL, AKRX Remain Best Positioned," *JP Morgan*, March 2, 2017, p. 1.

⁶⁸ For example, Dr. Nye himself includes (in his Exhibit 12) Endo's statement from as early as February 29, 2016 that describes increased pricing pressure in its generic business: "Compared to previous 2015 expectations, fourth quarter revenues in U.S. Generic Pharmaceuticals were unfavorably impacted by increased pricing pressure due to increased competition across pain and commoditized products within legacy Qualitest and certain non-recurring charges." Nye Report, Exhibit 12, p. 110 and "Endo Reports Fourth Quarter And Full Year 2015 Financial Results," *PR Newswire*, February 29, 2016, 6:30 AM, <https://www.prnewswire.com/news-releases/endo-reports-fourth-quarter-and-full-year-2015-financial-results-300227474.html>, accessed on August 6, 2020. On May 5, 2016, Endo indicated that, in its generics segment, "the base business erosion continued into the first quarter and was significantly deeper than we expected at approximately 30%. This was driven by continued pricing and competitive pressures on our commoditized and pain products." The edited earnings call transcript is made available by *Thomson Reuters STREETEVENTS*: "ENDP – Q1 2016 Endo International PLC Earnings Call," *Thomson Reuters STREET EVENTS*, Edited Transcript, May 5, 2016, p. 3.

bidding cycle.”⁶⁹ Endo’s second-quarter earnings press release in August 2016 also discussed the continued erosion in the generics base.⁷⁰

40. Indeed, throughout 2016, and consistent with the challenges Endo faced in its own generics business, analysts’ view of the U.S. generics market as a whole became more pessimistic due to a number of broad industry trends, including customer consolidation, price erosion, and high debt loads. For example, following the *Bloomberg* article on November 3, 2016, Morningstar Equity Research noted that “[w]e’re skeptical that this would dramatically change competitive dynamics in the industry, especially as customer consolidations and the U.S. Food and Drug Administration working through its backlog of generic drug applications already represent significant competitive challenges for the industry. Regardless, it’s more bad news for the generic drug industry, which *has already been battered from price erosion, increased competition, and concerns regarding high debt loads.*”⁷¹ Deutsche Bank stated that the “intense sell-off of many generic stocks large and small suggests that investors are ‘selling first and asking questions later,’” and noted further that “there is currently limited investor interest in increasing exposure to healthcare stocks [.]”⁷²

41. Consistent with this sentiment, when Endo released its third-quarter 2016 financial results on November 8, 2016 and stated that it “expect[ed] full year base business decline to be in the low [30s] percentage range,”⁷³ analysts commented on the erosion in Endo’s generics base. As an example, Morgan Stanley stated that “[d]espite reiterated 2016 guidance, management provided cautious commentary on [generics] pricing heading into 2017,”⁷⁴ and Deutsche Bank stated that “[w]hile ENDP reported decent 3Q results and maintained its 2016 revenue and EPS targets, the

⁶⁹ Nye Report, Exhibit 12, p. 160.

⁷⁰ For example, see “2Q Beats Lowered Expectations, 3Q Guided Down,” *BMO*, August 9, 2016; “Endo Reports Second Quarter 2016 Financial Results,” PRNewswire, August 8, 2016, <https://www.prnewswire.com/news-releases/endo-reports-second-quarter-2016-financial-results-300310706.html>, accessed on August 13, 2020.

⁷¹ “Media Reports Suggest Generic Drug Manufacturers Could Face Collusion Charges,” *Morningstar Equity Research*, November 4, 2016, p. 1. Emphasis added.

⁷² “Initial thoughts on generics news,” *Deutsche Bank*, November 4, 2016, p. 1.

⁷³ Endo discussed that “the US generics competitive landscape and pricing pressures continue to be challenging. Deeper than expected base erosion trends that we see and saw in the third quarter indicate stronger headwinds on the front as we exit the year.” “ENDP - Q3 2016 Endo International PLC Earnings Call,” *Thomson Reuters STREETEVENTS*, Edited Transcript, November 8, 2016 (“Endo Earnings Call, November 8, 2016”), pp. 3, 5.

⁷⁴ “Reducing estimates on Gx pricing pressure,” *Morgan Stanley*, November 9, 2016, p. 1.

company's base generics business faced greater than expected headwinds during the quarter (driven by pricing pressure and competitive intensity), which management believes could flow into 2017."⁷⁵

42. On January 9, 2017, during the JP Morgan Healthcare Conference, Endo disclosed that it expected continued decline in its U.S. generics business. Specifically, JP Morgan noted that "Endo expects the base business pricing environment it saw in 3Q to remain challenging and potentially continue into 2017 (30% y/y declines), with buying consortium pressure remaining a swing factor."⁷⁶ Barclays further highlighted that "[g]eneric pricing pressure continues to be an issue. With the consolidation of consortiums, agreements may need to be revisited."⁷⁷

43. This ongoing discussion throughout 2016 and early 2017 rendered Endo's fourth-quarter 2016 and full-year 2016 financial results, as well as its 2017 guidance, largely unsurprising to analysts. Indeed, analysts had already updated their expectations to reflect a more pessimistic outlook for the generics business prior to February 28, 2017, and viewed Endo's fourth-quarter 2016 and full-year 2016 financial results as stronger than expected (relative to these lowered expectations). For example, Leerink commented that "ENDP reported 4Q sales which *beat our forecast* by 6% *outperforming our expectations* for the generic business [...] Generics biz erosion is *consistent with outlook provided earlier in the year*."⁷⁸ Of the 15 analyst reports that were issued in response to Endo's February 28, 2017 results and were available to me, all 15 reported that Endo's actual (adjusted) EPS exceeded their forecasts.⁷⁹ Moreover, all of these analysts kept their recommendations (Buy, Hold, Market Perform, etc.) unchanged.

⁷⁵ "Lowering estimates and PT to \$25," *Deutsche Bank*, November 8, 2016, p. 1.

⁷⁶ "J.P. Morgan Conference Takeaways - ALERT," *JP Morgan*, January 9, 2017, p. 1.

⁷⁷ "Quick Takeaways after the Conference Presentation," *Barclays*, January 10, 2017, p. 2.

⁷⁸ "4Q Wrap-Up: Modest Sales beat, But Lowering Ests on Pessimistic '17 Guide," *Leerink*, February 28, 2017, p. 1. Emphasis added.

⁷⁹ The average fourth-quarter 2016 adjusted EPS surprise for this group was 10.5% (average percentage by which actual exceeded the forecast). See work-paper 2. In addition, Endo's reported adjusted EPS exceeded the Institutional Brokers Estimate System from *Refinitiv Thomson Reuters Eikon* ("I/B/E/S") consensus for the quarter. Three additional reports did not provide a prior estimate.

44. Analysts similarly viewed Endo's 2017 guidance announced on February 28, 2017⁸⁰ as consistent with their already-reduced expectations. For example:

- JP Morgan stated that "Endo reported stronger-than-expected 4Q results on both top line (generic launches) and EPS (+\$0.15 vs. consensus) while providing mixed 2017 guidance (revenue/EPS below but adj. EBITDA roughly in line). Overall, today's update *confirms a still challenging environment* for ENDP [...]"⁸¹
- Goldman Sachs commented that "[t]he shares responded positively (+3%, S&P flat) to 4Q upside and 2017 guidance that brought a number of moving parts, but may have provided enough to ease concerns of significant downside EBITDA risk to already reduced 2017 expectations. Specifically, despite an 8% shortfall in 2017 revenue guidance versus consensus, a surprisingly strong gross margin outlook — on product mix and cost initiatives — yielded a 2017 EBITDA forecast generally in-line with consensus (adjusting for the Lithia sale). Across the segments, the base Generic update was also *largely as expected* — low 30% yoy decline in-line with early January commentary [*sic*]." ⁸²
- Bank of America stated that "*investor expectations had been reset to some extent ahead of the issuance of ENDP's 2017 financial outlook. We view ENDP's new outlook as achievable and believe the positive stock reaction is a sign that investors are relatively comfortable with ENDP's ability to execute against the 2017 target set today.*" ⁸³
- Guggenheim stated that "ENDP reported a 4Q16 beat and guided down for '17, *which was expected given pricing pressure in generics.*" ⁸⁴
- Piper Jaffrey stated that "[t]ough outlook for legacy generics, but shouldn't come as a surprise. [...] ENDP guided to a 30%+ top-line decline for the base business in 2017, not at all a surprise [...]" ⁸⁵
- Stifel stated that the FY2017 guidance "was lighter than anticipated, likely from the *continued expected erosion* in the US Generics base business." ⁸⁶

⁸⁰ "[A]pproximately \$3.45 billion to \$3.6 billion, a low double-digit decline versus 2016 [...]" Endo Earnings Call, February 28, 2017, p. 7.

⁸¹ "Qtrly Beat with Mixed 2017 Update; Continue to See Long Road to Recovery –ALERT," *JP Morgan*, February 28, 2017, p. 1. Emphasis added.

⁸² "Outlook brings multiple moving parts but key challenges remain," *Goldman Sachs*, March 1, 2017, p. 1. Emphasis added

⁸³ "Solid Q, risk/reward favorable for 2017; reiterate Buy," *Bank of America Merrill Lynch*, February 28, 2017, p. 1. Emphasis added.

⁸⁴ "ENDP - Gonna Stick Around for the Blaise of Glory in '18+," *Guggenheim*, February 28, 2017, p. 1. Emphasis added.

⁸⁵ "A Tale of Two Generics Businesses; More Divestitures Needed; Staying Neutral," *Piper Jaffray*, February 28, 2017, p. 1.

⁸⁶ "Quick Take on 4Q16 ENDP Results," *Stifel*, February 28, 2017, p. 1. Emphasis added.

- Leerink stated that “[g]enerics biz erosion is consistent with outlook provided earlier in the year.”⁸⁷

45. The Complaint also highlights what it calls a “massive” impairment charge Endo announced on February 28, 2017: “\$2.85 billion tied specifically to the permanent impairment of Endo’s generics business to reflect its true value” and “wiping out 40% of the goodwill associated with Endo’s U.S. generics business’ value.”⁸⁸ The Complaint claims the impairment was a recognition of that fact that Endo was a “target of law enforcement,” and that “the Inflated Profits were never coming back.”⁸⁹ However, very few analysts commented explicitly on the impairment charge and those who did viewed it as a result of the known developments in the generics business, and no analysts described it as surprising or unexpected. For example, Susquehanna Financial Group stated that “ENDP took a whopper of an additional impairment in 4Q for past acquisitions. We view this as more of a *reflection of the adjustments to the generics outlook that are already incorporated in forecasts.*”⁹⁰ As detailed further below, the charge was driven largely by a reduction in expected cash flow due to pricing pressures, which was itself attributable to the erosion in the generics business and other forces that were already discussed by analysts in 2016.⁹¹ Importantly, many factors that contributed to this impairment charge,⁹² including the “increased buying power from the continued consolidation of its customer base” and “increased levels of competition due to the new low-cost competitors,” had been repeatedly discussed in Endo’s earnings releases and referenced in analyst commentary in previous quarters during fiscal year

⁸⁷ “4Q Wrap-Up: Modest Sales Beat, But Lowering Ests on Pessimistic ‘17 Guide,” *Leerink*, February 28, 2017, p. 1.

⁸⁸ Complaint, ¶¶ 15, 264.

⁸⁹ Complaint, ¶ 86.

⁹⁰ “Endo International: Outlook Points To Ability To Sustain Business,” *Susquehanna Financial Group*, March 1, 2017, p. 2. Emphasis added.

⁹¹ “The Company’s revised forecast reflects a change in [outlook], primarily for its generics reporting unit, reflecting the quickly evolving new realities of the US generics external environment, as characterized by increased buying power from the continued consolidation of its customer base, increased levels of competition due to the new low-cost competitors, and accelerated FDA ANDA approvals, and a change in the value drive from estimated future pricing levels. [...] All of these factors, coupled with increases in the risk factor included in the discount rate used to calculate the discounted cash flows, have driven a material decrease in the estimated fair value of our generics reporting unit, and certain intangible assets. This change in the estimated implied fair value led to the majority of the impairment charges recorded in the fourth quarter.” Endo Earnings Call, February 28, 2017, p. 6.

⁹² Furthermore, the impairment charge reflects factors unrelated to the Plaintiff’s allegations. For example, it is my understanding that pricing pressures due to the consolidation of Endo’s customer base, a factor that contributed to the impairment charge (and that is distinct from the pricing pressures due to competition that Endo also disclosed that day), is unrelated to Plaintiff’s allegations.

2016.⁹³ In fact, the impairment charge was simply a necessary accounting adjustment to reflect in the financial statements what was already well-known to the market about the prospects for Endo's generics business.⁹⁴ Relatedly, both for this quarter and in general, in assessing Endo's results and performance, analysts focused on its "adjusted" EPS numbers, as opposed to the bottom-line "reported" (GAAP) number. Adjusted EPS removes the effects of unusual, non-recurring items such as the impairment charge because such charges are less relevant to assessing current performance and predicting future profitability (for example, the reported earnings "surprise" discussed by analysts, and that I discussed above, compared adjusted EPS as reported by the Company to the analyst consensus for that number).⁹⁵

46. Furthermore, Mr. Campanelli had signaled the possibility of an impairment several months prior, during Endo's third-quarter 2016 earnings conference call on November 8, 2016, stating that "deeper than expected erosion and demand for our products, and/or changes to our resource allocation resulting from our strategic assessment could result in changes in the carrying values of assets across our segments."⁹⁶ Following this conference call, a Deutsche Bank analyst reported

⁹³ Endo Earnings Call, February 28, 2017, p. 6.

⁹⁴ As is well-known, the accounting system is backward-looking and historical in nature, while market prices are forward-looking. This is why, in general, market participants, including analysts, generally pay relatively little attention to unusual charges, write-downs, etc., which reflect declines in asset book values that are usually already well-known to the market. See, for example, Bunsis, H. (1997), "A Description and Market Analysis of Write-off Announcements," *Journal of Business Finance & Accounting*, 24(9 & 10), 1385–1400, pp. 1387, 1390 ("Asset write-downs which do not entail the disposal of any assets or lead to any new liabilities should not have any cash flow implications, as the event is a pure accounting transaction ... [An] asset write-down is not expected to have any effect on cash flows. Therefore, when a firm announces a write-down, there should be no market reaction. The firm is simply reducing the carrying value of an asset. Though this event reduces net income, the lack of a cash flow effect should lead to no reaction by the market.")

⁹⁵ See, for example, White, G., Sondhi, A., and Fried, D., *The Analysis and Use of Financial Statements*, 3rd ed., John Wiley & Sons, 2003, Chapter 17, pp. 15–17. The Company reported both "adjusted diluted EPS from continuing operations" and "adjusted net income from continuing operations" in addition to its as-reported GAAP numbers. It provided guidance for both "adjusted diluted EPS from continuing operations" and "adjusted EBITDA" from continuing operations. Endo Press Release, February 28, 2017. Furthermore, I/B/E/S also reports the full year 2016 adjusted EPS from continuing operations, which was higher than the I/B/E/S consensus estimate as of February 27, 2017. The I/B/E/S consensus was based on the adjusted EPS number because that was the EPS metric tracked and forecast by analysts who followed Endo.

⁹⁶ Endo Earnings Call, November 8, 2016, p. 5. Note that under GAAP (accounting) rules, changes in carrying values of such assets can only be revised downwards (upward revaluations of business segments, including goodwill are not permitted). See, ASC 350-20-35, Financial Accounting Standards Board, <https://asc.fasb.org/section&trid=2144453>, accessed on August 13, 2020. Thus, Mr. Campanelli's comments clearly telegraphed the possibility of asset write-downs.

that “Endo ‘management noted the possibility that greater erosion for generics and/or the outcome of its strategic review could potentially lead to asset impairments.’”⁹⁷

47. Thus, while the large fourth-quarter 2016 bottom-line loss was largely due to the impairment charge, the market did not view it as surprising or as a revelation of prior non-competitive pricing decisions. Put differently, by February 28, 2017, the factors that led to the impairment charge were largely “old news.” Similarly, none of the analysts attributed Endo’s guidance for 2017 to “continued pricing pressure due to the end of the anticompetitive scheme [.]”⁹⁸

48. I also reviewed the public press and analyst reports surrounding this date and found no new, positive non-allegation related confounding news about Endo that could have offset what would otherwise have been a statistically significant negative price impact of the alleged corrective disclosures, i.e., there was no positive news that could have offset what would otherwise have been a negative price impact of the alleged corrective disclosures.

49. Given these analyses, I conclude that the alleged corrective disclosures on February 28, 2017 did not negatively impact Endo’s stock price on that day.

2. February 28, 2017 – March 1, 2017

50. Endo filed its 2016 10-K with the SEC on March 1, 2017. The 10-K was accepted by the SEC’s EDGAR system at 2:19 PM ET and so likely became publicly available soon thereafter.⁹⁹ Plaintiff alleges that “[t]his news further revealed the truth concerning Defendants’ fraudulent conduct and the risks that Defendants had concealed during the Class Period further materialize.”¹⁰⁰ Plaintiff claims that “[b]etween the close of trading on February 27, 2017 and the close of trading on March 1, 2017, the share price fell \$0.47 or 3.5%, to close at \$12.82 on heavy trading volume.”¹⁰¹

⁹⁷ Nye Report, Exhibit 12, p. 211.

⁹⁸ Complaint, ¶ 264.

⁹⁹ “Filing Detail,” SEC, <https://www.sec.gov/Archives/edgar/data/1593034/000159303417000009/0001593034-17-000009-index.htm>, accessed on August 4, 2020. Note that the Complaint alleges that Endo’s 2016 10-K was filed “before trading opened” but provides no evidence to support that timing, Complaint, ¶ 206. The exact timestamp of Endo’s *filing* of the 2016 10-K is unknown.

¹⁰⁰ Complaint, ¶ 264.

¹⁰¹ Complaint, ¶ 87.

51. Plaintiff does not explain what new, corrective information Endo disclosed in its Form 10-K that had not previously been disclosed in the press release or earnings call on February 28, 2017.¹⁰² From my review of Endo's SEC filings, earnings call transcripts, public press and analyst reports, there is no evidence that the March 1, 2017 Form 10-K disclosed any meaningful new information relating to Plaintiff's allegations.

52. While the 2016 10-K contains some additional detail about Endo's impairment charges, those details are not qualitatively different from what Endo previously disclosed on February 28, 2017. See Appendix D for a comparison of detailed discussion of the impairment explanation.¹⁰³

53. I also reviewed analyst commentary on and after March 1, 2017 and found no evidence that the Form 10-K disclosures affected market expectations in any meaningful way. Among the numerous analyst reports (12 were available to me) issued between March 1 and March 7, 2017, only two commented specifically on the 10-K filing; the remaining 10 commented only on disclosures made in Endo's earnings press release and earnings conference call.¹⁰⁴

54. Even though examining a two-day return following the February 28, 2017 alleged corrective disclosures is inconsistent with an efficient market that quickly assimilates new information (and so inconsistent with Dr. Nye's opinion regarding market efficiency, as explained in paragraphs 33 to 36 above), I assessed Endo's two-day cumulative abnormal stock return for February 28 and March 1, 2017. Based on my event study, the two-day abnormal return was positive but not

¹⁰² [REDACTED]

Nye Deposition, 43:24-44:1.

¹⁰³ In addition, Endo disclosed that there was an increase in the discount rate used to determine the impairment charge, which "was due to the implied control premium resulting from recent trading values of [Endo's] stock." Endo 2016 10-K, p. 59. Other things held constant, a higher discount rate lowers the estimated fair value of the generics business unit, increasing the size of the impairment charge (which is the difference between the carrying value of the goodwill associated with the generics business unit and the fair value of that goodwill). Plaintiff has presented no evidence indicating the increase in Endo's discount rate is related to the allegations in this matter. Clearly, if the increase in discount rate was due to Endo's stock price decline that had already occurred before the alleged corrective disclosures were made, it could not be tied to the correction of prior alleged misrepresentations.

¹⁰⁴ Canaccord Genuity states that "[f]ollowing the publication of Endo's 10-K for the year ending December 31, 2016, we are very modestly adjusting our expense, EBITDA and EPS estimates. No changes to our revenue estimates were derived from Endo's 10-K publication." "Estimates Revised: Model update," *Canaccord Genuity*, March 3, 2017, p. 1. In addition, a Mizuho report on March 3 states "[b]ased on references in Endo's regulatory filings [...]" and goes on to discuss the mesh liability issue; it is unclear whether this reference is to the 8-K filing on February 28, the 10-K filing on March 1, or to both filings. "Raising PT to \$17 from \$15; Reiterate Buy," *Mizuho*, March 3, 2017, p. 2.

statistically significant at the 5% level.¹⁰⁵ The two-day abnormal return is also not statistically significant under Dr. Nye's regression model.¹⁰⁶ This finding reinforces my conclusion that the alleged corrective disclosures on February 28, 2017 did not negatively impact Endo's stock price.

55. My conclusions are further supported by an intraday analysis of Endo's stock price on March 1, 2017. Exhibit 1 plots Endo's intraday stock price movements on March 1, 2017. As is clear from this plot, most of the price decline on this day (74.7%) occurred by around noon, and so well *before* the 10-K was available to the market (Endo's 10-K was accepted by the SEC at 2:19 PM).¹⁰⁷ This reinforces my conclusion that the 10-K did not convey any incremental negative information to investors.

VII. DR. NYE DOES NOT PROVIDE A METHODOLOGY CAPABLE OF MEASURING CLASS-WIDE DAMAGES IN A MANNER CONSISTENT WITH PLAINTIFF'S THEORY OF LIABILITY

A. Dr. Nye's Proposed Damages Model

56. According to Dr. Nye, "[a]n investor incurs damages when a security is acquired at a price that is inflated as a result of false or misleading statements or omissions, provided that a later corrective disclosure and/or the materialization of a concealed risk causes the price of that security to decline."¹⁰⁸ Dr. Nye proposes to measure price inflation "on a Class-wide basis by analyzing the change in [the Company's] security's price caused by a corrective disclosure and/or the materialization of a concealed risk."¹⁰⁹ Further, Dr. Nye asserts that the "decline in a security's

¹⁰⁵ Under an alternative specification that uses a value-weighted industry peer index, the abnormal return is negative (-4.26%) but is not statistically significant at the 5% level. Under no model that I estimated is the cumulative return for this two-day window negative and statistically significant.

¹⁰⁶ I repeated Dr. Nye's analysis by extending his rolling regression to estimate the two-day abnormal return on February 28, 2017 – March 1, 2017. When I do so, I find that, under Dr. Nye's regression specification, the abnormal return is negative (-4.23%) but not statistically significant. See Dr. Nye's Backup Materials.

¹⁰⁷ The Complaint alleges that Endo's 2016 10-K was filed (and became available to the market) before market open on March 1, 2017. Endo's stock price, however, increased in overnight trading hours suggesting that the market's reaction to Endo's 2016 10-K, if it indeed became public before the market open, was not negative. Specifically, Endo's stock price closed at \$13.65 on February 28, 2017 and opened at \$13.83 on March 1, 2017, i.e., it increased by 1.32% during pre-market hours trading. Furthermore, around 2:19 PM ET (the time Endo's 2016 10-K was accepted by the SEC), Endo's stock price remained mostly unchanged. See, Exhibit 1.

¹⁰⁸ Nye Report, ¶ 59.

¹⁰⁹ Nye Report, ¶ 60.

price in response to such events reflects the dissipation of price inflation caused by earlier misrepresentations and/or omissions.”¹¹⁰

57. In this case, there are two alleged corrective disclosure dates (or date ranges)—November 3, 2016 and February 28, 2017–March 1, 2017—on which Plaintiff alleges the market responded to the purportedly corrective disclosures and/or reflected materialization of an allegedly concealed risk(s). The stock price declines that Dr. Nye would presumably use for purposes of his damages calculation are measured on these dates.¹¹¹

58. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]¹¹³ Dr. Nye claims that his event study could be “used to isolate Company-specific price movement caused by the revelation of true facts related to the alleged fraud” from “changes in market and industry conditions or the dissemination of material, non-fraud-related, Company-specific information.”¹¹⁴ Dr. Nye further asserts that “[a]fter isolating the price impact of the alleged misstatements and omissions, one can estimate the price inflation due to the alleged fraud for each day during the Class Period, and on a Class-wide basis for each member of the Class.”¹¹⁵

59. Finally, Dr. Nye appears to propose to use “the *size* of the [abnormal] return” on the alleged corrective disclosure date as “evidence of the *amount* by which concealing that particular information inflated [Endo’s] stock.”¹¹⁶ Once Dr. Nye has calculated “the price inflation due to the

¹¹⁰ Nye Report, ¶ 60.

¹¹¹ Dr. Nye’s description of the methodology he claims he would apply in this case is generic and does not specify the date he would use, the nature of the corrective disclosures, or the materializations of risk. In fact, Section VII of his report does not reference Endo, its disclosures, or indeed anything specific to the current matter at all. Nye Report, ¶¶ 58–62.

¹¹² Nye Deposition, 122:11–122:12.

¹¹³ Nye Deposition, 84:23–84:34, 85:9–85:22.

¹¹⁴ Nye Report, ¶ 60.

¹¹⁵ Nye Report, ¶ 60.

¹¹⁶ Nye Report, Footnote 98. Emphasis original.

alleged fraud” throughout the proposed Class Period, a Class member’s actual trading activity can, according to Dr. Nye, be used to “mechanically” calculate damages.¹¹⁷

B. A Proposed Damages Methodology Must Reliably Measure Inflation

60. Any methodology capable of properly measuring damages in this matter must provide a reliable measure of price inflation for each day of the proposed Class Period. Measured price inflation on each day is the difference between (a) the actual stock price on that day, and (b) the “but-for” stock price (in other words, the price that would have been observed in the absence of the alleged misrepresentations). While (a) is observable (we know what the stock price was on each day), (b) must be estimated using a methodology capable of reliably measuring the effects of the counterfactual (i.e., corrective) information on the security’s price on any given day.

61. To put it differently, Plaintiff’s methodology must reliably measure the effect on Endo’s stock price of any disclosures Plaintiff claims *should* have been made on each day of the proposed Class Period. This poses at least two significant challenges in this case.

62. First, Plaintiff must be able to specify what alternative disclosures the Company could and should have made on each day during the proposed Class Period. To do so, Plaintiff or its expert must identify both the information that was known to and should have been disclosed by Defendants on each day during the proposed Class Period, and moreover, how that information, if disclosed, would have changed the total mix of information in the marketplace such that there would have been no misrepresentations. Furthermore, to the extent the alleged corrective information constitutes a materialization of risk (as I understand has been alleged here),¹¹⁸ then, at best, all the Company could have done would have been to disclose the risk earlier and more fully—it could not have disclosed the materialization of the risk (the outcome) until it actually occurred.

63. Second, setting aside the inherent difficulties of properly identifying what information could and should have been disclosed earlier in the Class Period, one must also reliably measure the effect of that hypothetical corrective information on the price of the security on each day during that period. This is particularly challenging where, as here, the proposed Class Period encompasses

¹¹⁷ Nye Report, ¶ 61. Dr. Nye further states that the damages for each member of the proposed Class should reflect adjustments responsive to *Dura* and the “90-day lookback” provision of the Private Securities Litigation Reform Act of 1995. Nye Report, ¶¶ 60–62.

¹¹⁸ Complaint, ¶ 258.

a two-year period during which the market and business circumstances facing the Company, and the leverage and riskiness of its stock, were changing in ways that would likely affect the economic value of a given piece of information.

C. Flaws in Dr. Nye's Proposed Damages Approach

64. As described above, Dr. Nye proposes to use an event study to isolate the company-specific price decline in Endo's stock (purportedly attributable to the alleged fraud) at the time of the alleged corrective disclosures, and then to measure inflation retroactively on each day during the proposed Class Period. Such a simplistic approach, often referred to as "back-casting,"¹¹⁹ is inadequate given the circumstances and complexity of this matter. As I will argue below, Dr. Nye's proposed damages approach is flawed in several important ways.

1. Dr. Nye Does Not Articulate a Class-Wide Damages Methodology Capable of Measuring Damages Attributable to Plaintiff's Theory of Liability

65. I understand that, following the Supreme Court decision in *Comcast*, courts require that plaintiffs present a damages methodology capable of separating damages attributable to plaintiffs' different theories of liability.¹²⁰ In the current matter, Plaintiff alleges at least two "independent and separate" theories of liability (although, as I understand from counsel, only one remains viable per Court order).¹²¹ Specifically, Plaintiff alleges that Endo made statements and omissions that were "false and misleading" based on theories that it: (i) engaged in a price fixing agreement with its competitors, yet failed to disclose its participation in a price fixing conspiracy to its investors,¹²² and (ii) misstated and omitted information about the competitive environment, the sources of its generics income, and the causes of its price increases, thus misrepresenting the sources and sustainability of profits from its generics business.¹²³ If we accept—for the sake of argument in this subsection—Plaintiff's claim that the information revealed on November 3, 2016 and February

¹¹⁹ [REDACTED] See Nye Deposition, 137:14–137:20.

¹²⁰ Opinion, *Comcast Corp. v. Behrend*, 569 U.S. 27, 35 (2013), pp. 7–8.

¹²¹ Complaint, ¶ 186; Memorandum and Order, pp. 17, 22–23.

¹²² Complaint, ¶ 186; Memorandum and Order, pp. 6, 17, 20.

¹²³ Complaint, ¶ 186; Memorandum and Order, pp. 6, 9.

28 – March 1, 2017 was actually corrective of the alleged misrepresentations in this matter, Dr. Nye fails to present a methodology that could reliably apportion the price decline on these dates (if any) to Plaintiff’s remaining liability theory.¹²⁴

66. Consider, for example, November 3, 2016. Plaintiff alleges that on November 3, 2016 “new information was revealed to the market regarding Endo’s anticompetitive pricing” of its generic products through a *Bloomberg* article published on that date.¹²⁵ The article referenced potential anticompetitive conduct with respect to two Endo products, and “identified Endo’s generics segment Par as among the manufacturers in question.”¹²⁶ According to Plaintiff, this “news began to reveal the truth concerning Defendants’ fraudulent conduct and the risks that Defendants concealed during the Proposed Class Period began to materialize.”¹²⁷

67. The investigation described in this article was focused broadly on the generics drug industry, including Endo and thirteen other pharmaceutical companies. Assume, for purposes of this section, that the *Bloomberg* article partially revealed that Endo was engaged in a price fixing agreement with its competitors (a theory that has been excluded by the Court’s order on Defendants’ motion to dismiss the Complaint).¹²⁸ Under *Comcast*, I understand that Dr. Nye needs to provide a reliable way of apportioning the stock price decline attributable to the alleged revelation of Endo’s price fixing conduct from that attributable to the revelation of the purported truth regarding Endo’s misrepresentations or omissions that were misleading even in the absence of a price-fixing conspiracy. By pointing to a standard event study, which can only ever measure the total price decline associated with all Endo-specific news on that day, Dr. Nye fails to articulate a methodology capable of measuring only those damages attributable to Plaintiff’s remaining liability theory.

68. Plaintiff does not explain how the news regarding the Department of Justice (“DOJ”) price-fixing investigation announced in the November 3, 2016 article revealed any “truth” regarding

¹²⁴ As discussed elsewhere in my report, there is no evidence that Endo’s stock price did in fact decline over the course of the February 28 – March 1, 2017 period, or that the allegedly corrective disclosures on February 28, 2017 impacted Endo’s stock price on that day, i.e., February 28, 2017.

¹²⁵ David McLaughlin and Caroline Chen, “U.S. Charges in Generic-Drug Probe to Be Filed by Year-End,” *Bloomberg*, November 3, 2016 (“*Bloomberg* Article”); Complaint ¶ 260.

¹²⁶ Complaint, ¶ 261.

¹²⁷ Complaint, ¶ 261.

¹²⁸ Memorandum and Order, p. 17.

Endo’s “market conditions, sources of revenue, and pricing decisions” (i.e., Plaintiff’s remaining theory of liability).¹²⁹ [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]¹³⁰ However, Dr. Nye provides no justification for his understanding, and offers no evidence that the price fixing allegation indeed had the same or similar “ramifications” as “concealing the sources of income, the noncompetitive price decisions and the abnormal market conditions.” Notably, while Endo’s quarterly earnings releases in May, August, and November of 2016 revealed the impact of market conditions, pricing pressures, and other adverse competitive forces on its profitability, the Complaint claims that all of these statements are misleading and concealed the “truth” regarding Endo’s alleged anti-competitive pricing and the associated impact on Endo’s performance. Further, the *Bloomberg* article makes no reference to Endo’s “market conditions, sources of revenue, [or] pricing decisions.” None of the analyst reports issued on this day described the investigation as revealing anything about Endo’s “market conditions, sources of revenue, [or] pricing decisions” that was new or surprising. It is thus hard to understand what “truth” the *Bloomberg* article revealed. A reasonable conclusion is that Endo’s stock price decline on November 3, 2016 was attributable to purported government investigations of an alleged price-fixing conspiracy, which I understand only relates to the liability theory that the Court has since denied. For the companies named in the *Bloomberg* article, analysts attributed the November 3, 2016 stock price declines to expected settlement costs related to the

¹²⁹ Memorandum and Order, p. 22.

¹³⁰ Nye Deposition, 147:8–147:16.

DOJ investigation, and some suggested that the large decline in the sector's market capitalization was an overreaction relative to their estimates of those costs.¹³¹

2. Dr. Nye Fails to Articulate a Damages Methodology Capable of Isolating the Impact of Confounding Information

69. Dr. Nye asserts that “[a]n event study can be used to isolate Company-specific price movement caused by the revelation of true facts related to the alleged fraud from price movement caused by other factors,” including “*the dissemination of material, non-fraud-related, Company-specific information.*”¹³² [REDACTED]

[REDACTED]¹³³ [REDACTED]

70. An event study, properly conducted, measures that portion of a security's return (the “abnormal return”) not explained by broader market and industry factors. However, the standard event study analysis as conducted by Dr. Nye in the current matter cannot apportion the abnormal return among different pieces of firm-specific information released during a given event

¹³¹ For example, Leerink consulted a legal specialist and provided examples of possible outcomes regarding the investigation: “So, for example, if a generic pharma were to be found guilty of benefiting \$200m in profit from a collusive price hike, the cumulative DOJ/class action damages could be \$1bn. [...] [But also notes that] most of these cases settle according to the specialist, ~50-75% based on his experience.” “More Pricing Headwinds: DOJ Probe A Likely Overhang For Several Qtrs,” *Leerink*, November 3, 2016, p. 1. Susquehanna Financial Group stated that the “2-year investigation was known, though the need for aggressive action seemed diminished by a shift to price erosion that already battered earnings and valuations. The impression of an overdone reaction is reinforced by work from SFG's Litigation Analyst Tom Claps suggesting the sector's exposure is likely much less than the > \$7 bln lost market cap based on DOJ's largest price fixing cases [...]” “DOJ Price-Fixing Case A Major Overhang but Declines Overdone vs. Precedents,” *Susquehanna Financial Group*, November 4, 2016. Emphasis in original. Morgan Stanley stated that “stocks appear to be overreacting to DOJ generic price collusion investigation [...] [because] [f]ive drugs known to be involved in the investigation account for a minimal percentage (0-2%) of total '17E sales for TEVA, MYL, and ENDP.” “Stocks Appear to Be Over-Reacting to DOJ Generic Price Collusion Investigation,” *Morgan Stanley*, November 3, 2016, p. 1. Deutsche Bank also highlighted that “[i]t is hard to imagine a scenario in which the financial penalties, if any, would end up approaching the ~\$8.5B in market cap that was wiped out.” “Initial thoughts on generics news,” *Deutsche Bank*, November 4, 2016.

¹³² Nye Report, ¶ 60. Emphasis added.

¹³³ Nye Deposition, 159:13–159:16.

¹³⁴ Nye Deposition, 159:15–159:16.

window.^{135,136} [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]¹³⁸ However, Dr. Nye ignores the fact that the valuation models (including those of analysts) to which he refers at deposition are not part of the event study analysis he proposed, nor does he explain how to actually use these valuation models here, and perhaps more importantly, the fact that such tools require significant subjective judgment especially if one were to try and use them to dissect the effect on stock price of distinct (qualitative) economic factors, such as “price pressures,” that would be necessary here.¹³⁹ Merely suggesting the potential use of these valuation models does not resolve the challenges of actually measuring damages consistent with Plaintiff’s theory of liability. These valuation models are more correctly thought of as broad *approaches*, each of which can be implemented in a variety of ways, as opposed to being clearly specified methods.

71. For example, on February 28, 2017, when Plaintiff alleges that Endo disclosed an impairment charge “wiping out 40% of the goodwill associated with Endo’s U.S. generics business’ value” along with allegedly “disappointing 2017 guidance,”¹⁴⁰ among other items, the Company also disclosed other news that analysts viewed as disappointing that are unrelated to Plaintiff’s allegations. Those included a higher than expected adjusted effective tax rate, higher than expected

¹³⁵ See, for example, Campbell, Lo, and MacKinlay (1997), pp. 151–152, who indicate that an event study has very clear structure and criteria. It requires the event definition, selection criteria, normal and abnormal returns, estimation procedure, testing procedure, the empirical results, and interpretation and conclusions.

¹³⁶ For this reason, it is conventional practice in event studies, which typically form large samples of specific types of events such as merger announcements or announcements of bond ratings changes, to drop observations that are “contaminated” by other news disclosed by or about the company during the event window. See, for example, Holthausen, R. W., and Leftwich, R. W. (1986) “The Effect of Bond Rating Changes on Common Stock Prices,” *Journal of Financial Economics*, 15, 57–89, p. 65.

¹³⁷ Nye Deposition, 158:2–158:12.

¹³⁸ [REDACTED] Nye Deposition, 158:19–158:22.

¹³⁹ Damodaran, A., *Damodaran on Valuation*, 2nd ed., John Wiley and Sons, 2006, pp. 4–7. “Barring a very small subset of assets, there will always be uncertainty associated with valuations, and even the best valuations come with a substantial margin for error. [...] Even at the end of the most careful and detailed valuation, there will be uncertainty about the final numbers [...] It is unrealistic to expect or demand absolute certainty in valuation, since the inputs are only estimates.”

¹⁴⁰ Complaint, ¶ 264.

variable-rate interest expense, weak operating cash flows, higher than expected future payouts related to ongoing mesh product litigation, and weaker than expected performance in its international generics and U.S. branded pharmaceuticals segments.¹⁴¹ Deutsche Bank observed that “the company aspires to reduce net leverage to 3-4x (from 4.6x) but did not provide a timeframe given various uncertainties; and [...] ENDP did not increase its accrual for mesh liability, but did provide a higher estimate for potential cases not yet accrued for (~9.7k, up from ~8k).”¹⁴² See Exhibit 2 for additional analyst commentary related to these factors. The portion of the stock price decline attributable to such non-allegation related confounding information would not comprise damages attributable to Plaintiff’s claims. In the end, Dr. Nye fails to articulate a methodology that can control for confounding information and provides only vague and unsubstantiated claims that his purported event study would be able to isolate the effect of company-specific, yet non-allegation related stock price movements.

3. The Price Decline Following the Materialization of a Risk Necessarily Overstates Inflation Caused by Concealing that Risk Earlier during the Proposed Class Period

72. Dr. Nye claims that “[p]rice inflation may be measured on a Class-wide basis by analyzing the change in a security’s price caused by a corrective disclosure and/or the materialization of a concealed risk.”¹⁴³ Plaintiff argues that the alleged corrective disclosures revealed “numerous and

¹⁴¹ Endo Press Release, February 28, 2017. Note that while the Company’s 2017 adjusted EPS guidance missed analysts’ estimates, this was largely attributable to a higher than expected effective tax rate and interest expense, as observed by a number of analysts; the Company’s 2017 EBITDA guidance was largely in-line with expectations. This is important because neither of these factors (the tax rate or interest expense) are related to Plaintiff’s allegations. For example, Goldman Sachs noted that “despite an 8% shortfall in 2017 revenue guidance versus consensus, a surprisingly strong gross margin outlook – on product mix and cost initiatives – *yielded a 2017 EBITDA forecast generally in-line with consensus* (adjusting for the Lithia sale).” “Outlook brings multiple moving parts but key challenges remain,” *Goldman Sachs*, March 1, 2017, p. 1, emphasis added. JP Morgan also explained that Endo provided “[m]ixed 2017 guidance with revenue/EPS below but *adj. EBITDA guidance largely in line with expectations*. Endo provided full-year revenue guidance of \$3.45–\$3.60bn, adjusted EPS of \$3.45–\$3.75 and adjusted EBITDA of \$1.50–\$1.58bn. This compares with cons revenue of ~\$3.85bn, EPS of ~\$4.24 and EBITDA of ~\$1.57. While we will listen for more color on the call regarding revenue drivers, *a big portion of the EPS miss is driven by higher interest expense* (~\$475mn guide vs. our current estimate of ~\$433mn due to an increase in variable-rate interest expense) and tax rate (13–14% vs. our estimate of ~9%, although the cash tax rate remains in the low-single digits).” “Qtrly Beat with Mixed 2017 Update; Continue to See Long Road to Recovery – ALERT,” *JP Morgan*, February 28, 2017, p. 1, emphasis added.

¹⁴² “2017 a transition year,” *Deutsche Bank*, March 2, 2017, p. 1.

¹⁴³ Nye Report, ¶ 60.

related risks.”¹⁴⁴ To the extent that such risks were allegedly concealed during the Class Period and that the allegedly corrective disclosures subsequently reflect the materialization of those risks, the associated stock price decline on those days does not—and cannot—accurately measure damages. In other words, and contrary to Dr. Nye’s claim, the stock price decline upon the materialization of a concealed risk (i.e., when the risk becomes a 100% certainty) cannot measure the purported stock price inflation due to the earlier concealment of risk (when the risk was still uncertain).¹⁴⁵ This damages methodology leads to a systematic overstatement of damages. See Appendix E for an illustrative example.

73. Dr. Nye’s damages approach also fails to consider that the alleged “risks” were not *concealed* but were in fact previously discussed by Endo—note that damages under Dr. Nye’s methodology are overstated irrespective of whether risks are concealed or understated. For example, Endo had disclosed the pricing investigation into Par that was described in the November 3, 2016 *Bloomberg* article. Specifically, in financial statements Endo filed in 2015 after the Par acquisition, the Company disclosed that Par had received a subpoena from the DOJ and that Par was cooperating with the investigation.¹⁴⁶ Endo further disclosed, in the first Form 10-K filed after the Par acquisition, that antitrust matters such as the DOJ investigation into Par are inherently unpredictable and that the company could not predict outcomes of those matters.¹⁴⁷ And the November 3, 2016 *Bloomberg* article itself notes that Par had previously disclosed the DOJ

¹⁴⁴ Complaint, ¶ 258.

¹⁴⁵ I am not opining that the entire abnormal price declines observed on November 3, 2016 and February 28–March 1, 2017 reflect the materialization of risks, as other company-specific factors could also be reflected in the aggregate price decline. Rather, I am referring to the portion of the price decline that is associated with the materialization of the risks.

¹⁴⁶ See for example, Endo International plc, Form 10-Q, filed on November 9, 2015: “In December 2014, our subsidiary, Par, received a Subpoena to Testify Before Grand Jury from the Antitrust Division of the DOJ [...] request[ing] documents and information focused primarily on product and pricing information relating to Par’s authorized generic version of Lanoxin (digoxin) oral tablets and Par’s generic doxycycline products, and on communications with competitors and others regarding these products. Par is currently cooperating fully with the investigation.” See also, Endo 2015 10-K, p. 45.

¹⁴⁷ For instance, in Endo 2015 10-K, the Company mentions “Investigations similar to these antitrust matters described above may be brought by others. We are unable to predict the outcome of these investigations or the ultimate legal and financial liability, if any, and at this time cannot reasonably estimate the possible loss or range of loss for these investigations, if any, but will explore all options as appropriate in our best interest.”

inquiry.¹⁴⁸ Various analysts likewise commented that the DOJ investigation was known to the market.¹⁴⁹

74. To the extent that an alleged risk (e.g., the risk of government scrutiny over alleged product pricing in this case) had been fully disclosed or was otherwise known to the market before the alleged corrective disclosure date, there can be no damages associated with that risk. If an alleged risk was understated or concealed, any inflation in Endo’s stock price earlier in the proposed Class Period should only reflect the price difference attributable to that portion of the risk that was understated or concealed. In other words, the purported inflation should only capture the difference between the “true” level of risk and the level of understated risk known to the market. As with any such event study, however, Dr. Nye’s approach necessarily captures the full price effect of the *realization* of risk (when the risk becomes a certainty) as opposed to the portion of this amount due to the *understatement* of the risk.¹⁵⁰ See Appendix E for an illustrative example.

75. [REDACTED]

[REDACTED]¹⁵¹ [REDACTED]

[REDACTED]¹⁵² [REDACTED]

[REDACTED]¹⁵³ Putting aside the issue of whether Dr. Nye’s proposed damages methodology is reliable when the materialization of risk is a “virtually certain” foreseeable consequence (it is not), Dr. Nye provides no evidence or analysis showing that in this current matter, the risks allegedly materialized on November 3, 2016 or February 28 – March 1, 2017 were “virtually certain to occur” with

¹⁴⁸ “Mylan and Par have said they’ve been asked about doxycycline [...] Impax, Lannett and Par have all disclosed receiving inquiries about digoxin.” *Bloomberg* Article.

¹⁴⁹ For example, Susquehanna Financial Group noted that “[...] report that DOJ is ready to make a criminal case out of past price increases. The 2-year investigation was known [...]” “DOJ Price-Fixing Case A Major Overhang but Declines Overdone vs. Precedents,” *Susquehanna Financial Group*, November 4, 2016, p. 1.

¹⁵⁰ As noted earlier, the firm-specific price decline on the alleged corrective disclosure dates may reflect confounding factors and other corrective disclosures along with the effect of the materialization of risk. As described above, Dr. Nye has not provided any methodology that can isolate the price effect of the materialization of risk from these other factors, which further renders his proposed damages approach unreliable.

¹⁵¹ Nye Deposition, 126:21–126:23.

¹⁵² Nye Deposition, 133:16–134:5.

¹⁵³ Nye Deposition, 133:23–134:5.

foreseeable consequences. Furthermore, Dr. Nye does not offer a methodology that can correctly account for the inflation associated with an allegedly concealed risk whose materialization was not foreseeable with a certainty, and Dr. Nye completely ignores (in his report and at deposition) the significant hurdles the materialization of risk poses to estimation of damages in this matter.

4. Dr. Nye Fails to Explain How His Proposed Damages Approach Would Take into Account the Time-Varying Nature of the Alleged Inflation in Endo's Stock Price

76. Even if one ignores all of the other flaws with Dr. Nye's proposed damages approach, there are good reasons to expect the impact of an earlier counterfactual disclosure to be different from that observed on the alleged corrective disclosure dates. Dr. Nye ignores economically important factors that likely caused the alleged inflation to fluctuate (and likely increase) over time. This is because the price of a security is determined by the mix of contemporaneous information available to investors, which typically evolves and changes over time. Over the proposed Class Period, Endo's business focus changed, its leverage (and so the riskiness of its stock) increased considerably, and the alleged "Inflated Profits" varied. Dr. Nye fails to explain how his measure of price inflation could account for the effect of such changes during the proposed Class Period.

77. Dr. Nye ignores various well-known changes to Endo's business model and focus during the proposed Class Period that would change the purported inflation in Endo's stock price. During the proposed Class Period, Endo made several acquisitions and shifted its business model focus from one driven by growth through mergers and acquisitions toward a model that was more focused on improving margins and deleveraging.¹⁵⁴ As a result of these changes, the U.S. generics segment became a more important part of Endo's business.

78. Endo's stock price risk changed during the proposed Class Period. These changes in risk are at least partly due to the fact that Endo's stock price declined during the proposed Class Period before any alleged corrective disclosure was made, causing its leverage to increase substantially.

¹⁵⁴ As discussed above, during its February 28, 2017 Earnings Call, Endo expressed an evolution to their business strategy, namely (1), "[A] priority is to build our portfolio and capabilities for the future. In doing so, we identified assets and businesses that were no longer core to us and divested them, or plan to in the near future, as they no longer align with our go-forward strategy. [...] We are investing where we can win, and divesting non-core assets." and (2), "[Another] priority is to drive margin expansion and delever. [...] [D]elevering is a priority, and we do aspire to delever back into the 3 to 4 times range over time." Endo Earnings Call, February 28, 2017, p. 3.

Specifically, Endo's ratio of debt to total capitalization increased from 0.38 in 2015 to 0.69 in 2016 and to 0.83 in 2017.¹⁵⁵ This increase is wholly attributable to the decline in stock price (decrease in market value of equity).¹⁵⁶ All else equal, over the course of the proposed Class Period this increase in leverage increased the sensitivity of Endo's stock price to news similar to that contained in the alleged corrective disclosures.¹⁵⁷ Put differently, Dr. Nye fails to consider that if the alleged corrective disclosures had been made earlier in the proposed Class Period, when Endo was less focused on generics, as well as less leveraged and financially stronger—and its stock less volatile—news about regulatory scrutiny and price erosion would have had a smaller effect on Endo's stock price. Moreover, and in addition, such news would likely have been less concerning to shareholders. Both of these factors mean that the same disclosures alleged by Plaintiff would likely have led to a smaller stock price reaction earlier in this proposed Class Period. Dr. Nye's methodology does not account for this.¹⁵⁸

79. Indeed, Dr. Nye's own event study provides direct evidence of changes in the risk of Endo's stock that directly affect how its price would respond to information and, therefore, price inflation. The exhibits to the Nye Report show that the market and industry beta coefficients (common measures of "systematic" risk, which measure the sensitivity of Endo's stock returns to market and

¹⁵⁵ Endo's ratio of debt to total capitalization was 0.65 as of September 30, 2016, before the first alleged corrective disclosure was made. Endo International plc, Form 10-Q for quarter ended September 30, 2016, filed on November 8, 2016, p. 4; *Refinitiv Thomson Reuters Eikon*. The debt-to-total assets ratio was 0.44 in 2015 and increased to 0.58 in 2016 and 0.71 in 2017. See Exhibit 3. These financial metrics are commonly used measures of financial risk (leverage). See for example, Brealey, R.A., Myers, S.C., and Allen, F., *Principles Corporate Finance*, 9th ed., McGraw-Hill/Irwin, 2007, pp. 716–718.

¹⁵⁶ Endo's total debt declines slightly after its 2015 fiscal year-end (see Exhibit 3).

¹⁵⁷ Financial leverage increases the risk borne by shareholders: as debt increases relative to market capitalization, shareholders "bear greater financial risk [...] because all of the firm's business risk is absorbed by a smaller base of equity investors." See, for example, Bodie, Zvi, Alex Kane, and Alan J. Marcus. 2014 (10th ed.). *Investments*. New York: McGraw-Hill/Irwin, p. 645. In their classic text, *The Theory of Finance*, Nobel laureates Eugene Fama and Merton Miller state: "[F]or given assets the more bond financing [debt] used, the riskier the earnings that accrue to the common shareholders and to the bondholder. Specifically the more bond financing used, the higher the chance of default on at least part of the firm's debt and the higher the chance that the stockholders receive nothing. To reflect this risk, the shares and bonds of highly levered firms sell to yield higher expected returns than those of less highly levered firms." Fama, E. F., and Miller, M. H., *The Theory of Finance [by] Eugene F. Fama [and] Merton H. Miller*, Holt, Rinehart and Winston, 1972, p. 186.

¹⁵⁸

Nye Deposition, 121:4–121:7; 122:15–122:24.

industry factors) as well as the regression standard errors (which measure the “unsystematic,” or company-specific risk of the stock) increased noticeably during the proposed Class Period.¹⁵⁹ This reinforces my view that Endo changed systematically during the proposed Class Period in a manner that has direct implications for how its stock price would have reacted to the alleged corrective disclosures had they been made earlier in the proposed Class Period.

80. Furthermore, as Endo’s leverage increased, the Company itself recognized that the riskiness of its stock had increased, as reflected in its decision to increase the discount rate used in its impairment calculations. In explaining this change, the Company discussed the increased discount rate “resulting from recent trading values of our stock,” and that it used higher discount rates (8.5% to 11% in Q4 FY16 vs. 8.5% to 9.0% in Q2 FY16) in the valuation of its reporting units to determine the impairment charge announced on February 28, 2017.¹⁶⁰ According to Endo, “a 50 basis point increase in the assumed discount rate utilized [...] would have increased our Generics reporting unit goodwill impairment charge by approximately \$440 million [...]”¹⁶¹ If Plaintiff’s view is that Endo should have taken an impairment charge earlier in the proposed Class Period, Dr. Nye fails to consider that that an earlier impairment charge would have been significantly smaller. Dr. Nye also fails to consider that, because the impairment charge was also due to acquisitions that occurred during the proposed Class Period (for instance, potentially the Par acquisition), it could not have occurred at the beginning of the proposed Class Period.

81. Dr. Nye’s approach of modeling inflation as constant over time is also inconsistent with Plaintiff’s own argument that Endo’s anticompetitive pricing behavior varied systematically during the proposed Class Period. For example, according to the Complaint, at least two out of thirteen generic products with allegedly inflated profits (Butalbital/Acet/Caff and Phenobarbital Tablets) were subject to price increases *after* the beginning of the proposed Class Period, while the prices of other products had been increased before the proposed Class Period began,¹⁶² and still others were

¹⁵⁹ Dr. Nye’s Backup Material; Nye Report, Exhibit 11A and 11B. This breakdown — of a security’s total return volatility (risk) into systematic and unsystematic risk — is a fundamental idea in finance and a basic premise of the event study model. For example, see, Fama, E.F., *Foundations of Finance*, Basic Books, 1976, p. 104.

¹⁶⁰ Endo 2016 10-K, pp. 59, F-40; Endo International plc, Form 10-Q, filed on August 9, 2016, p. 23.

¹⁶¹ Endo 2016 10-K, p. 56.

¹⁶² Complaint, ¶¶ 98–144.

not acquired until later (three of the thirteen products with “inflated profits” (Isosorbide, Cholestyramine, Digoxin) were not acquired until September 2015).¹⁶³ Therefore, by Plaintiff’s own argument, inflation must have changed over time depending on both the number of products generating “Inflated Profits” as well as the amount of those profits at different points in time. Dr. Nye’s methodology does not make clear, or even discuss, how his generic “back-casting” approach would account for such changes.

82. Dr. Nye also fails to consider how the Par acquisition itself would have impacted purported inflation in Endo’s stock price. Endo purchased Par partly through a secondary issuance of shares. According to Plaintiff’s arguments, the price of these shares was inflated, which implies that Endo issued fewer of its own shares than it would have otherwise have done in a “but-for” world absent the purported inflation. Consequently, it is not clear how the allegedly inflated profits from the Par products translated into inflation in Endo’s stock price.¹⁶⁴ If the alleged share price inflation at the beginning of the proposed Class Period is different from the alleged share price inflation following the acquisition of Par, as logic dictates it would be, Dr. Nye fails to offer a methodology to determine the changes in the alleged inflation due to the Par acquisition.

83. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

166

¹⁶³ Complaint, ¶¶ 135, 139, 142; Endo 2016 10-K, p. F-26.

¹⁶⁴ Moreover, the fact that the November 3, 2016 *Bloomberg* article only mentions the Par products as being subject to the DOJ investigation (and not any other Endo products) further complicates one’s ability to properly estimate inflation based on an event study on that date. Dr. Nye does not describe how he would disentangle the impact of this alleged corrective disclosure from inflation due to those alleged misstatements and omissions unrelated to Par’s products that Plaintiff also alleged were also corrected on that date. Complaint, ¶¶ 260–261; *Bloomberg* Article.

¹⁶⁵ Nye Deposition, 121:4–121:7.

¹⁶⁶ Nye Deposition, 121:20–122:6.

5. Dr. Nye Fails to Demonstrate How His Damages Methodology Can Be Applied Across Different Types of Investors

84. Dr. Nye asserts that damages “can be calculated using a methodology that is common to the Class.”¹⁶⁷ However, he does not analyze whether there are likely to be differences in the investment decision-making and risk preferences of different Endo investors. In fact, there are likely to be important differences among Endo’s investors: for example, there are likely to be some investors with a low appetite for risk who may not have invested in Endo at all but for the alleged misrepresentations, who would be in a different economic position from those investors with greater risk tolerance, who may still have invested in Endo (albeit at a lower price) had the purportedly “true” risks been disclosed during the proposed Class Period. Dr. Nye fails to demonstrate how his damages methodology can be applied on a class-wide basis for investors in these different economic situations.

85. For example, the Vanguard Group¹⁶⁸ manages funds that mostly follow a passive indexing strategy, which seeks to replicate the returns of a benchmark index. The goal under that approach is to replicate the weight of Endo in an index portfolio regardless of any idiosyncratic (Endo-specific) risk. On the other hand, Norges Bank Investment Management (NBIM),¹⁶⁹ a sovereign wealth fund that also invests in Endo, follows a “Core Value” investment style. The primary goal under that approach is not to replicate returns on an index portfolio. Instead, NBIM is an “active” manager that seeks to identify undervalued stocks. For that reason, NBIM—unlike Vanguard—

¹⁶⁷ Nye Report, ¶ 7.


¹⁶⁸ According to Endo Form Def 14A filings, Vanguard Group held 9,067,089 shares of common stock (5.1% of total shares outstanding) as of April 14, 2015, and held 18,800,418 shares of common stock (8.4% of total shares outstanding) as of April 13, 2017. See Endo International plc, Form Def 14A, Proxy Statement for the 2015 Annual General Meeting of Shareholders, April 29, 2015, pp. 22, 58; Endo International plc, Form Def 14A, Proxy Statement for the 2017 Annual General Meeting of Shareholders, April 28, 2017, pp. 23, 63.

¹⁶⁹ According to Endo Form Def 14A filings and *Refinitiv Thomson Reuters Eikon*, Norges Bank Investment Management (NBIM) held 213,849 shares of common stock as of June 30, 2015 (0.1% of total shares outstanding as of April 14, 2015), and held 1,635,834 shares of common stock as of December 31, 2016 (0.7% of total shares outstanding as of April 13, 2017). See Endo International plc, Form Def 14A, Proxy Statement for the 2015 Annual General Meeting of Shareholders, April 29, 2015, pp. 22; Endo International plc, Form Def 14A, Proxy Statement for the 2017 Annual General Meeting of Shareholders, April 28, 2017, p. 23.

pays close attention to idiosyncratic and Company-specific risks, which directly affects its investment decisions.¹⁷⁰

86. Accordingly, it seems likely that, had Endo made different risk disclosures earlier in the proposed Class Period, different investors would have made different decisions about whether to purchase Endo's common stock. This was borne out in reality: those investors who purchased Endo shares after the November 3, 2016 *Bloomberg* article—which allegedly began to reveal a concealed risk—knowingly took on more risk than those investors who only purchased shares before that date.¹⁷¹

87. Dr. Nye does not analyze the potential differences in the investment decisions and risk appetites of Endo's investors. Given these differences, Dr. Nye fails to demonstrate how his damages methodology can be applied on a class-wide basis. To the contrary, evidence suggests that individualized inquiry may be necessary to identify different investors' risk thresholds, which could inform individualized damages estimates.


 Signed: _____
 Douglas J. Skinner, Ph.D.

August 17, 2020

¹⁷⁰ From an economic perspective, the only class members who could potentially claim as damages the *entire* stock price decline on the alleged corrective disclosure days are those who would not have purchased the stock *at all* had the alleged misrepresentations and omissions not been made. As discussed in V.II.C.3, under the realization of risk liability theory, class members who would have purchased the stock anyway, albeit at a lower price, would be overcompensated if they were awarded damages corresponding to the entire price decline on the alleged corrective disclosure days.

¹⁷¹ Endo's stock price declined steadily during the trading day on November 3, 2016. The stock opened at \$18.24 and had dropped to \$16.87 (average trade price at 2:10:26 PM ET) by the time the *Bloomberg* article was published (at 2:10:27 PM ET). Endo's stock price did not trade below \$16.86 at any point before 2:10:27 PM ET.

July 22, 2020

DOUGLAS J. SKINNER

Deputy Dean for Faculty

Eric J. Gleacher Distinguished Service Professor of Accounting

The University of Chicago Booth School of Business

5807 South Woodlawn Avenue

Chicago, IL 60637

Phone: 773-702-7137

dskinner@chicagobooth.edu**Education**

B.Ec. (First Class Honours), Accounting/Finance, Macquarie University, 1985.

M.S., Applied Economics, University of Rochester, 1988.

Ph.D., Accounting (major area), Finance (minor area), University of Rochester, 1989.

Appointments

University of Chicago, Booth School of Business

Deputy Dean for Faculty, 2015-2016, 2017-

Interim Dean, 2016-2017

Eric J. Gleacher Distinguished Service Professor of Accounting, 2014-

John P. and Lillian A. Gould Professor of Accounting, 2006-2013

Executive Director, Accounting Research Center, 2011-2016

Professor of Accounting and Neubauer Family Faculty Fellow, 2005-2006

Neubauer Faculty Fellow and Visiting Professor of Accounting, 2003-2004

Independent trustee, audit committee chair; Harbor Funds, 2020-

Senior Fellow, Asian Bureau of Finance and Economic Research (ABFER), 2017-

University of Melbourne, Faculty of Business and Economics

Professorial Fellow, 2010-

Journal of Accounting Research

Senior Editor, 2006-present.

Journal of Accounting & Economics

Editor, 2000-2005.

Associate Editor, 1994-2000.

University of Michigan Business School

KPMG Professor of Accounting, 1998-2005

Accounting Area Chair, 2001-2003

Professor of Accounting, 1997-2005

Associate Professor of Accounting, 1993-1997

Assistant Professor of Accounting, 1989-1993

Coopers & Lybrand (Sydney)
Auditor, 1980-82.

Scholarly Honors and Awards

Distinguished Ph.D. Mentoring Award, Financial Reporting Section, American Accounting Association, 2020.

BlackRock prize for best paper at 2015 Review of Accounting Studies conference ("The role of the media in disseminating insider trading news." With Jonathan Rogers and Sarah Zechman.)

Hillel J Einhorn Excellence in Teaching Award, 2014.

Emory Williams Award for Teaching Excellence, 2013.

American Accounting Association Financial Reporting Section best paper prize in 2009. ("Earnings Momentum and Earnings Management." With James Myers and Linda Myers. Journal of Accounting, Auditing and Finance, 22, 2, Spring 2007: 249-284.)

Jensen Prize for the best paper in Corporate Finance and Organizations published in the *Journal of Financial Economics* in 2004. ("Are Dividends Disappearing? Dividend Concentration and the Consolidation of Earnings." With Harry DeAngelo and Linda DeAngelo.)

CQA/IBES Research Competition, 1998. ("Earnings Surprises, Growth Expectations, and Stock Returns or Don't Let an Earnings Torpedo Sink Your Portfolio." With Richard Sloan. Review of Accounting Studies, 7, 2/3, June/September 2002: 289-312.)

KPMG Peat Marwick Faculty Fellow 1993-1996.

KPMG Peat Marwick Research Fellow 1991-1993.

Deloitte Haskins & Sells Foundation Doctoral Fellow 1986-88.

University of Rochester Sproull Fellow 1985-1987.

Main Publications

"Options Markets and Stock Return Volatility." Journal of Financial Economics 23, 1, June 1989: 61-78.

"Options Markets and the Information Content of Accounting Earnings Releases." Journal of Accounting & Economics 13, 3, October 1990: 191-211.

"Dividends and Losses." With Harry DeAngelo and Linda DeAngelo. Journal of Finance 47, 5, December 1992: 1837-1863.

- "The Investment Opportunity Set and Accounting Procedure Choice: Preliminary Evidence." Journal of Accounting & Economics 16, 4, October 1993: 407-445.
- "Accounting Choice in Troubled Companies." With Harry DeAngelo and Linda DeAngelo. Journal of Accounting & Economics 17, 1-2, January 1994: 113-143.
- "How Do Taxes Affect Investors' Stock Market Realizations? Evidence from Tax-Return Panel Data." With H. Nejat Seyhun. Journal of Business 67, 2, April 1994: 231-262.
- "Why Firms Voluntarily Disclose Bad News." Journal of Accounting Research 32, 1, Spring 1994: 38-60. (This article is abstracted in The CFA Digest 24, 4, Fall 1994.)
- "Reversal of Fortune: Dividend Policy and the Disappearance of Sustained Earnings Growth." With Harry DeAngelo and Linda DeAngelo. Journal of Financial Economics 40, 3, March 1996: 341-371.
- "Earnings Disclosures and Stockholder Lawsuits." Journal of Accounting & Economics 23, 3, November 1997: 249-282.
- "Determinants of the Valuation Allowance for Deferred Tax Assets under SFAS-109." With Gregory S. Miller. The Accounting Review 73, 2, April 1998: 213-233.
- "An Empirical Examination of Conference Calls as a Voluntary Disclosure Medium." With Richard Frankel and Marilyn Johnson. Journal of Accounting Research 37, 1, Spring 1999: 133-150.
- "Earnings Management: Reconciling the Views of Accounting Academics, Practitioners, and Regulators." With Patricia Dechow. Paper delivered at the AAA/FASB Financial Reporting Issues Conference in December, 1999. Accounting Horizons, 14, 2, June 2000: 235-250.
- "Special Dividends and the Evolution of Dividend Signaling." With Harry DeAngelo and Linda DeAngelo. Journal of Financial Economics, 57, 3, September 2000: 309-354.
- "Earnings Surprises, Growth Expectations, and Stock Returns or Don't Let an Earnings Torpedo Sink Your Portfolio." With Richard Sloan. Review of Accounting Studies, 7, 2/3, June/September 2002: 289-312. This paper won the 1998 CQA/IBES Research Competition.
- "Large Sample Tests of the Debt Covenant Hypothesis." With Ilia Dichev. Journal of Accounting Research, 40, 4, September 2002: 1091-1123.
- "The Role of Supplementary Statements with Management Earnings Forecasts." With Amy P. Hutton and Gregory S. Miller. Journal of Accounting Research 41, 5, December 2003: 867-890.

- “Employee Stock Options, EPS Dilution, and Stock Repurchases.” With Daniel Bens, Venky Nagar, and M. H. Franco Wong. Journal of Accounting and Economics, 36, 1-3, December 2003: 51-90.
- “Are Dividends Disappearing? Dividend Concentration and the Consolidation of Earnings.” With Harry DeAngelo and Linda DeAngelo. Journal of Financial Economics, 72, 3, June 2004: 425-456. This paper won the Jensen Prize for the best paper in corporate finance and organizations published in the *Journal of Financial Economics* in 2004.
- “Earnings Momentum and Earnings Management.” With James Myers and Linda Myers. Journal of Accounting, Auditing and Finance, 22, 2, Spring 2007: 249-284. This paper won the AAA Financial Reporting Section best paper prize in 2009.
- “Does Earnings Guidance Affect Market Returns? The Nature and Information Content of Aggregate Earnings Guidance.” With Carol Anilowski and Mei Feng. Journal of Accounting and Economics 44, 1-2, September 2007: 36-63.
- “The Evolving Relation between Earnings, Dividends, and Stock Repurchases.” Journal of Financial Economics 87, 3, March 2008: 582-609.
- “Accounting for Intangibles – A Critical Review of Policy Recommendations.” Accounting and Business Research 38, 3, 2008: 191-204.
- “A reply to Lev’s rejoinder to ‘Accounting for Intangibles – A Critical Review of Policy Recommendations.’” Accounting and Business Research 38, 3, 2008: 215-216.
- “The Rise of Deferred Tax Assets in Japan: The Role of Deferred Tax Accounting in the Japanese Banking Crisis.” Journal of Accounting and Economics 46, 2-3, 2008: 218-239. Lead article.
- “Corporate Payout Policy.” With Harry DeAngelo and Linda DeAngelo. Foundations and Trends in Finance 3, 2-3, 2008: 95-287.
- “Management Forecasts in Japan: An Empirical Study of Forecasts that are Effectively Mandated” (Previously titled “When Voluntary Disclosure Isn’t Voluntary: Management Forecasts in Japan.”) With Kazuo Kato and Michio Kunimura. The Accounting Review 84, 5 (September 2009): 1575-1606.
- “Earnings Guidance and Market Uncertainty.” With Jonathan Rogers and Andrew Van Buskirk. Journal of Accounting and Economics 48, 1 (October 2009): 90-109.
- “Implications for GAAP from an analysis of positive research in accounting.” With S. P. Kothari and Karthik Ramanna. (Previously titled: “What Should GAAP Look Like? A Survey and Economic Analysis.”) Journal of Accounting and Economics 50, 2-3 (December 2010): 246-286. (Invited review paper.)

“What Do Dividends Tell Us About Earnings Quality?” With Eugene Soltes. Review of Accounting Studies 16, 1 (March 2011): 1-28.

“Measuring Securities Litigation Risk.” With Irene Kim. Journal of Accounting and Economics 53, 1-2 (February-April 2012): 290-310.

“Audit Quality and Auditor Reputation: Evidence from Japan.” With Suraj Srinivasan. The Accounting Review 87, 5 (September 2012): 1737-1765.

“The Politics of Accounting Standard-Setting: A Review of Empirical Research.” With Brandon Gipper and Brett J. Lombardi. Australian Journal of Management 38, 3 (December 2013): 523-551.

“Payout policy through the financial crisis: The growth of repurchases and the resilience of dividends.” With Eric Floyd and Nan Li. Journal of Financial Economics 118, 2 (November 2015): 299-316.

“The role of the media in disseminating insider trading news.” With Jonathan L. Rogers and Sarah L. C. Zechman. Review of Accounting Studies 21, 3 (September 2016): 711-739. BlackRock prize for best paper, Review of Accounting Studies conference, 2015.

“Is Japan Really a “Buy”? The Corporate Governance, Cash Holdings, and Economic Performance of Japanese Companies.” With Kazuo Kato and Meng Li. Journal of Business Finance & Accounting 44, 3 & 4 (March/April 2017): 480-523.

“Run EDGAR Run: SEC Dissemination in a High Frequency World.” With Jonathan L Rogers and Sarah L. C. Zechman. Journal of Accounting Research 55, 2 (May 2017): 459-505.

Conference Proceedings

"Stock Returns, Trading Volume, and Bid-Ask Spreads Around Earnings Announcements: Evidence from the NASDAQ National Market System." Proceedings: Seminar on the Analysis of Security Prices, 36, 1, May 1991: 289-329.

Current Working Papers

“Lucky or Good: Audit market concentration and the emergence of the Big 4 in Australia.” (Previously titled: “Why is the audit market concentrated? The emergence of the Big 4 in Australia.” “The evolution of audit market structure and the emergence of the Big Four: Evidence from Australia.”) With Matthew Pinnuck and Colin Ferguson (deceased). Revised, May 2019. Under revision.

Invited Discussions and Commentaries (non-refereed)

"Are Disclosures About Bank Derivatives and Employee Stock Options 'Value Relevant'?" Journal of Accounting & Economics 22, 1-3, Aug.-Dec. 1996: 393-405.

"What Motivates Managers' Choice of Discretionary Accruals?" With Victor L. Bernard. Journal of Accounting & Economics 22, 1-3, Aug.-Dec. 1996: 313-325.

"Do Options Markets Improve Informational Efficiency?" Contemporary Accounting Research 14, 2, Summer 1997: 193-201.

"How Well Does Net Income Measure Firm Performance? A Discussion of Two Studies." Journal of Accounting & Economics, 26, 1-3, January 1999: 105-111.

"Should Firms Disclose Everything to Everybody? A Discussion of 'Open versus closed conference calls: The determinants and effects of broadening access to disclosure.'" Journal of Accounting and Economics 34, 1-3, January 2003: 181-187.

'Comments on "The Effects of Taxes on Market Responses to Dividend Announcements and Payments: What Can We Learn from the 2003 Dividend Tax Cut?"' by Raj Chetty, Joseph Rosenberg, and Emmanuel Saez, in Alan J. Auerbach, James R. Hines, Jr., and Joel Slemrod, eds., Taxing Corporate Income in the 21st Century (Cambridge University Press, 2007): 36-40.

'Discussion of "The implications of unverifiable fair-value accounting: Evidence from the political economy of goodwill accounting"' Journal of Accounting and Economics 45, 2-3, August 2008, 282-288.

'Discussion of "Accounting standards and debt covenants: Has the "Balance Sheet Approach" led to a decline in the use of balance sheet covenants?"' Journal of Accounting and Economics 52, 2-3, November 2011: 203-208.

"Accounting research in the Japanese setting." The Japanese Accounting Review, 1, 2011: 135-140.

"How should we think about earnings quality? A discussion of "Earnings quality: Evidence from the field." With Mark W. Nelson. Journal of Accounting and Economics 56, 2-3 (December 2013): 34-41.

"The Evolving Disclosure Landscape: How Changes in Technology, the Media, and Capital Markets Are Affecting Disclosure." Journal of Accounting Research 53, 2 (May 2015): 221-239.

Other Publications

"Are the SEC's Safe Harbor Provisions Effective in Encouraging the Disclosure of Forward-Looking Information?" Financial Analysts Journal 51, 4, July-August 1995: 38-44.

"Issues in Foreign Exchange Hedge Accounting." With Michael H. Moffett. Journal of Applied Corporate Finance 8, 5, Fall 1995: 82-94.

“Bad News Rings True.” With Amy P. Hutton and Gregory S. Miller. Investor Relations Quarterly 6, 2, 2004: 49-56.

“Japan’s Window Dressing Hid Olympus Fraud,” Bloomberg Opinion, November 30, 2011, <https://www.bloomberg.com/opinion/articles/2011-12-01/japan-s-window-dressing-hid-olympus-fraud-commentary-by-douglas-skinner>

“Why U.S. Companies Continue to Pay Dividends,” Bloomberg Opinion, April 11, 2012, <https://www.bloomberg.com/opinion/articles/2012-04-11/why-u-s-companies-continue-to-pay-dividends>

“Corporate America is Enriching Shareholders at the Expense of the Economy.” fivethirtyeight.com July 15, 2014. <http://fivethirtyeight.com/features/corporate-america-is-enriching-shareholders-at-the-expense-of-the-economy/>

The Financial Accounting Standards Committee of the AAA is charged with responding to requests by standards setters on issues related to financial reporting. As a member of that Committee from 1999 until 2002 I contributed to comment letters to the Financial Accounting Standards Board (FASB), the International Accounting Standards Committee (IASC), and the U.S. Securities and Exchange Commission (SEC). Published versions of these comment letters for which I served as principal author are as follows:

- Response to the FASB Preliminary Views: Reporting Financial Instruments and Certain Related Assets and Liabilities at Fair Value. (with J. M. Wahlen, Chair, J. R. Boatsman, R. H. Herz, G. J. Jonas, K. G. Palepu, S. G. Ryan, K. Schipper, and C. M. Schrand). Accounting Horizons December 2000, Vol. 14, No. 4, pp. 501-508.
- Implications of Accounting Research for the FASB’s Initiatives on Disclosure of Information about Intangible Assets. With L. A. Maines, Chair, E. Bartov, P. M. Fairfield, D. E. Hirst, T. E. Iannaconi, R. Mallett, C. M. Schrand, L. Vincent. Accounting Horizons June 2003, Vol. 17, No. 2, pp. 175-185.

Selected Media Coverage

“Dividends, Wall Street’s Battered Status Symbol,” The New York Times, February 13, 2016.

“As Stock Prices Slump, Don’t Count on Buybacks,” Wall Street Journal, January 25, 2016.

“Fast Traders Are Getting Data From SEC Seconds Early,” Wall Street Journal, October 29, 2014.

“High-frequency traders said to get SEC filings early,” Financial Times, October 29, 2014.

“Certain Traders May Get Early Looks at S.E.C. Filings, Paper Finds,” The New York Times, October 29, 2014.

“Flush with Cash, Apple Plans Buyback and Dividend,” The New York Times, March 19, 2012.

Professional Activities

Journal of Accounting Research: Senior Editor, 2006-present.

Accounting and Finance, Editorial Board, 2012-2016.

Asia-Pacific Journal of Accounting & Economics, Associate Editor, 1999-2005.

Journal of Accounting & Economics:
Editor, 2000-2005.
Associate Editor, 1994-2000.

The Accounting Review, Editorial Advisory and Review Board, 1992-1996; 1997-1999.

Review of Accounting Studies, Co-Editor, 1999-2000.

Ad hoc referee for numerous accounting and finance journals.

Member: American Accounting Association, American Finance Association.

American Accounting Association Committees:

- Financial Accounting Standards Committee, 1999-2002.
- AAA/FASB Annual Financial Reporting Issues Conference Organizing Committee, 1999, 2000, 2005.
- 2001-2002 Competitive Manuscript Prize Committee.

Ph.D. Committees (chronological order with initial placements)

At Michigan:

Arun Kumar (Finance)
Christine Botosan. Washington University, St Louis.
Li Li Eng. Singapore National University.
Karen Nelson. Stanford.
Lillian Mills. Arizona.
Brian Bushee. Harvard Business School.
Marlene Plumlee (Chair). Utah.
David Heike (Finance). Western Ontario.
Timothy Burch (Finance). Miami (FL).
Gregory Miller (Chair). Harvard Business School.
Mark Bradshaw. Harvard.
Anchada Charoenrook (Finance). Vanderbilt.
Darren Roulstone (Co-chair). Chicago.
Linda Myers (Chair). Washington (Seattle).
Irem Tuna (Chair). Wharton.
Scott Richardson. Wharton.
Fai Cang (Finance). Vanderbilt.

Jef Doyle. Utah.
Irene Kim (Chair). Duke.
Mei Feng (Chair). Pittsburgh.
Wei Tang (Chair). Georgetown.

At Chicago:

Regina Wittenberg Moerman. Wharton.
Yu Gao. Minnesota.
Eugene Soltes (Chair). Harvard Business School.
Ningzhong Li. London Business School.
Lawrence Takeuchi (finance).
Pepa Kraft. NYU.
Jeff Ng. Chinese University of Hong Kong.
Anna Costello. (Chair). MIT.
Alon Kalay. Columbia.
Jonathan Milian. (Chair). Florida International University.
Meng Li (Co-chair). UT-Dallas.
Joao Granja. MIT.
Christine Cuny. NYU.
Joshua Madsen (Chair). Minnesota.
Marina Niessner (finance). Yale.
Eric Floyd. Rice.
Nan Li (Chair). Toronto.
Gerardo Perez Cavazos (Chair). Harvard Business School.
Frank Zhou (Chair). Wharton.
Matthew Bloomfield. Wharton.
Brett Lombardi (Chair). Monash (Australia).
Oleg Kuriukhin. Cornerstone Research.
AnyaNakhmurina. Yale.
Johanna Shin. Analysis Group.

Douglas J. Skinner, Expert Reports and Testimony.

Expert Report and deposition; *Enron Creditors Recovery Corp., et al. v. Citigroup Inc., et al.* in the United States Bankruptcy Court, Southern District Of New York, Chapter 11 Case No. 01---16034 (AJG) (August 31, 2007).

Expert Report, deposition, and trial testimony; *WFC Holdings Corporation v. United States of America*, in the United States District Court for the District of Minnesota, Civil Action No. 07- CV- 3320 (JRT/FLN) (2010).

Expert declaration; *Pershing Square Capital Management L.P., Valeant Pharmaceuticals, Inc. et al. v. Allergan, Inc. et al.*, in the Court of Chancery of the State of Delaware, C.A. No. 10057-CB. (2014).

Affidavit; *United States of America v. Todd S. Farha, Thaddeus M.S. Bereday, Paul L. Behrens, William L. Kale, and Peter E. Clay*, United States District Court, Middle District of Florida, Tampa Division, Case No. 8:11-cr-115-T-30MAP, 18 U.S.C. § 371, 18 U.S.C. § 1035, 18 U.S.C. § 1347, 18 U.S.C. § 1001, 18 U.S.C. § 982(a)(7) (2014).

Expert reports and cross examination testimony; *Jacqueline Coffin and Sandra Lowry v. Atlantic Power Corporation, Barry Welch and Terrence Ronan*, in the Ontario Superior Court of Justice, Court File No. CV-13-480939-00CP (2014 - 2015).

Expert reports and trial testimony; *Exelon Corporation v. Commissioner of Internal Revenue*, in the United States Tax Court, Docket Nos. 29183-13 and 29184-13 (2015).

Expert reports and deposition; *Baker Hughes Incorporated v. United States of America*, United States District Court, Southern District of Texas, Civil Action H-15-2675 (2017).

Expert report and deposition; *SEC v. RPM International et al.*, United States District Court for the District of Columbia, Civil Action No. 16-1803 (ABJ) (2018, 2019).

Expert report and deposition; *SEB Investment Management AB, Individually and on behalf of others similarly situated v. Endo International plc et al.*, United States District Court for the Eastern District of Pennsylvania, Civil Action No. 2:17-CV-3711-TJS (2019).

Expert reports and trial testimony; *Tribune Media Company, f.k.a. Tribune Company & Affiliates v. Commissioner of Internal Revenue*, in the United States Tax Court, Docket Nos. 20940-16 and 20941-16 (2019).

Expert report and deposition; *SEB Investment Management AB, Individually and on behalf of others similarly situated v. Symantec Corporation and Gregory S. Clark*, United States District Court Northern District of California, Case No.: 3:18-cv-02902-WHA (2020).

Expert report and deposition; *In re Allergan plc Securities Litigation*, United States District Court for the Southern District of New York, Civil Action No. 18-cv-12089 (2020).

Documents Relied Upon

Pleadings and Legal Documents

- Alexandre Pelletier, Individually and On Behalf of All Others Similarly Situated v. Endo International plc et al., Amended Complaint filed August 6, 2018.
- Memorandum and Order, Alexandre Pelletier et al v. Endo International PLC et al., 2:17-cv-5114 -MMB (E.D. Pa., February 14, 2020).
- Opinion, Comcast Corp., et al. v. Behrend, et al., March 27, 2013.

Depositions

- Deposition of Dr. Zachary Nye, July 27, 2020.

Expert Reports

- Expert Report and Exh bits of Dr. Zachary Nye dated June 26, 2020, including all Backup Materials in "Endo - Nye Production"

SEC Filings

- Abbot Laboratories, Form 10-K for FY 2016, filed on February 17, 2017.
- Allergan plc, Form 10-K for FY 2016, filed on February 24, 2017.
- Endo International plc, Form 10-K for FY 2014, filed on March 2, 2015.
- Endo International plc, Form 10-K for FY 2015, filed on February 29, 2016.
- Endo International plc, Form 10-K for FY 2016, filed on March 1, 2017.
- Endo International plc, Form 10-K for FY 2017, filed on February 27, 2018.
- Endo International plc, Form 10-Q for the Quarter Ended June 30, 2016, filed On August 9, 2016.
- Endo International plc, Form 10-Q for the Quarter Ended September 30, 2015, filed on November 9, 2015.
- Endo International plc, Form 10-Q for the Quarter Ended September 30, 2016, filed on November 8, 2016.
- Endo International plc, Form 10-Q for the Quarter Ended March 31, 2017, filed on May 9, 2017.
- Endo International plc, Form 8-K, filed on February 28, 2017.
- Endo International plc, Form Def 14A, Proxy Statement for the 2015 Annual General Meeting of Shareholders, filed April 29, 2015.
- Endo International plc, Form Def 14A, Proxy Statement for the 2017 Annual General Meeting of Shareholders, filed April 28, 2017.
- Horizon Pharma plc, Form 10-K for FY 2016, filed on February 27, 2017.
- Impax Laboratories, Inc., Form 10-K for FY 2016, filed on March 1, 2017.
- Jazz Pharmaceuticals plc, Form 10-K for FY 2016, filed on February 28, 2017.
- Mallinckrodt plc, Form 10-K for FY 2016, filed on November 29, 2016.
- Mylan N.V., Form 10-K for FY 2016, filed on March 1, 2017.
- Shire plc, Form 10-K For FY 2016, filed on February 22, 2017.
- Teva Pharmaceutical Industries Limited, Form 20-F for FY 2016, filed on February 15, 2017.

Academic Literature

- Barclay, M., and Litzenberger, R. (1988), "Announcement Effects of New Equity Issues and the Use of Intraday Price Data," *Journal of Financial Economics*, 21(1), 71–99.
- Bunsis, H. (1997), "A Description and Market Analysis of Write-off Announcements," *Journal of Business Finance & Accounting*, 24(9 & 10), 1385–1400.
- Busse, J., and Green, T. (2002), "Market Efficiency in Real Time," *Journal of Financial Economics*, 65(3), pp. 415–437.
- Collins, D.W., Rozeff, M.S., and Dhaliwal, D.S. (1981), "The Economic Determinants of the Market Reaction to Proposed Mandatory Accounting Changes in the Oil and Gas Industry, A Cross-Sectional Analysis," *Journal of Accounting and Economics*, 3, 37–71.
- Fama, E. (1991), "Efficient Capital Markets: II," *The Journal of Finance*, 46(5), 1575–1617.
- Greene, J. and S. Watts, S. (1996), "Price Discovery on the NYSE and the NASDAQ: The Case of Overnight and Daytime News Releases," *Financial Management*, 25(1), 19–42.
- Holthausen, R. W., and Leftwich, R. W. (1986), "The Effect of Bond Rating Changes on Common Stock Prices," *Journal of Financial Economics*, 15, 57–89.
- Johnson, T. and So, E. (2018), "Time Will Tell: Information in the Timing of Scheduled Earnings News," *Journal of Financial and Quantitative Analysis*, 53(6), 2431–2464.
- Langetieg, T. C. (1978), "An Application of a Three-Factor Performance Index to Measure Stockholder Gains from Merger," *Journal of Financial Economics*, Vol. 6(4), 365–383.
- Langetieg, T. C., Haugen, R. A., and Wichern, D. W. (1980), "Merger and Stockholder Risk," *Journal of Financial and Quantitative Analysis*, 15(3), 689–717.

Books

- Bodie, Z., Kane, A., and Marcus, A.J., *Investments*, 10th ed., McGraw-Hill/Irwin, 2014.
- Brealey, R.A., Myers, S.C., and Allen, F., *Principles Corporate Finance*, 9th ed., McGraw-Hill/Irwin, 2007.
- Campbell, J., Lo, A., and MacKinlay, A., *The Econometrics of Financial Markets*, Princeton University Press, 1997.
- Chatterjee, S. and Simonoff, J.S., *Handbook of Regression Analysis*, John Wiley & Sons, Inc., 2013.
- Damodaran, A., *Damodaran on Valuation*, 2nd ed., John Wiley and Sons, 2006.
- Dielman, T.E., *Applied Regression Analysis*, South-Western, 4th ed., 2005.
- Fama, E. and Miller, M.H., *The Theory of Finance [by] Eugene F. Fama [and] Merton H. Miller*, Hold, Rinehart and Winston, 1972.
- Fama, E., *Foundations of Finance*, Basic Books, 1976.
- Kothari, S.P. and Warner, J.B., "Chapter 1: Econometrics of Event Studies," in *Handbook of Corporate Finance: Empirical Corporate Finance*, 1st ed., Elsevier, 2007.
- White, G., Sondhi, A., and Fried, D., *The Analysis and Use of Financial Statements*, 3rd ed., John Wiley & Sons, 2003.

Analyst Reports

- "Lowering projections; awaiting 2H re-basing," *Morgan Stanley*, March 9, 2017.
- "Media Reports Suggest Generic Drug Manufacturers Could Face Collusion Charges," *Morningstar Equity Research*, November 4, 2016.
- "More Pricing Headwinds: DOJ Probe A Likely Overhang For Several Qtrs," *Leerink*, November 3, 2016.
- "2017 a transition year," *Deutsche Bank*, March 2, 2017.
- "2017 guidance below expectations, awaiting clarity on '17 exit run rate," *Morgan Stanley*, February 28, 2017.
- "2017 Reset Underway Post 4Q:16 Beat," *Mizuho*, February 28, 2017.
- "2Q Beats Lowered Expectations, 3Q Guided Down," *BMO Equity Research*, August 9, 2016.
- "4Q Wrap-Up: Modest Sales Beat, But Lowering Ests on Pessimistic '17 Guide," *Leerink*, February 28, 2017.
- "4Q16 Earnings First Impressions," *Barclays*, February 28, 2017.
- "A Tale of Two Generics Businesses; More Divestitures Needed; Staying Neutral," *Piper Jaffray*, February 28, 2017.
- "Base pressures," *Barclays*, March 1, 2017.
- "DOJ Price-Fixing Case A Major Overhang but Declines Overdone vs. Precedents," *Susquehanna Financial Group*, November 4, 2016.
- "Endo International Plc (ENDP): First take: 4Q ahead but 2017 guidance mixed - weak revenue helped by stronger GM; cash flow light," *Goldman Sachs*, February 28, 2017.
- "Endo International PLC: Base Pressures," *Barclays*, March 1, 2017.
- "Endo International: Outlook Points To Ability To Sustain Business," *Susquehanna Financial Group*, March 1, 2017.
- "ENDP – Gonna Stick Around for the Blaise of Glory in '18+," *Guggenheim*, February 28, 2017.
- "Estimates Revised: Model update," *Canaccord Genuity*, March 3, 2017.
- "Hitting the Reset Button for 2017 – Buy," *Gabelli & Co*, March 1, 2017.
- "Initial thoughts on generics news," *Deutsche Bank*, November 4, 2016.
- "J.P. Morgan Conference Takeaways - ALERT," *JPMorgan*, January 9, 2017.
- "Lowering estimates and PT to \$25," *Deutsche Bank*, November 8, 2016.
- "Lowering Numbers to Reflect Cautious Guide as Generic Pressures Persist," *BMO Capital Markets*, March 2, 2017.
- "Lowering PT to \$18," *Deutsche Bank*, March 7, 2017.
- "Outlook brings multiple moving parts but key challenges remain," *Goldman Sachs*, March 1, 2017.
- "Qtrly Beat with Mixed 2017 Update; Continue to See Long Road to Recovery - ALERT," *JPMorgan*, February 28, 2017.
- "Quick Take on 4Q16 ENDP Results," *Stifel*, February 28, 2017.
- "Quick Takeaways after the 4Q2016 Earnings Call," *Barclays*, February 28, 2017.
- "Quick Takeaways after the Conference Presentation," *Barclays*, January 10, 2017.
- "Raising PT to \$17 from \$15; Reiterate Buy," *Mizuho*, March 3, 2017.
- "Reducing estimates on Gx pricing pressure," *Morgan Stanley*, November 9, 2016.
- "Solid 4Q print and decent initial '17 guide; lack of flex leaves us on the sideline," *Canaccord Genuity*, February 28, 2017.
- "Solid Q, risk/reward favorable for 2017; reiterate Buy," *Bank of America Merrill Lynch*, February 28, 2017.
- "Specialty Pharma / Generics: 4Q16 Wrap Up: Challenging Environment Persists; MYL, AKRX Remain Best Positioned," *JPMorgan*, March 2, 2017.
- "Stocks Appear to Be Over-Reacting to DOJ Generic Price Collusion Investigation," *Morgan Stanley*, November 3, 2016.
- "Streamlining Commences with Sale of Litha, Refocusing in 2017," *Stifel*, February 28, 2017.
- "Strong Quarter, Sub-Par Guidance; Transparency Keeps Us Positive," *JMP*, February 28, 2017.
- "Thesis Is Unchanged - Better Alternatives Exist," *Cowen and Co*, February 28, 2017.
- "Thoughts on AKRX and ENDP following ephedrine news," *Deutsche Bank*, January 30, 2017.
- "Thoughts Post 4Q-2017 Outlook Appears Conservative But Leverage Concerns Persist," *JPMorgan*, March 1, 2017.

- "What a Tangled Mesh We Weave; 2017 Outlook "Good Enough" Given Share Price," *Raymond James*, February 28, 2017.

Publicly Available Materials

- "Endo Press Release, ENDP – Q1 2016 Endo International PLC Earnings Call," *Thomson Reuters STREETEVENTS*, May 5, 2016.
- "Endo Reports Fourth Quarter And Full Year 2015 Financial Results," *PRNewswire*, February 29, 2016, 6:30 AM, <https://www.prnewswire.com/news-releases/endo-reports-fourth-quarter-and-full-year-2015-financial-results-300227474.html>, accessed on August 6, 2020.
- "Endo Reports Fourth-Quarter And Full-Year 2016 Financial Results," *PRNewswire*, February 28, 2017, <https://www.prnewswire.com/news-releases/endo-reports-fourth-quarter-and-full-year-2016-financial-results-300414600.html>, accessed on August 3, 2020.
- "Endo to Announce Fourth-Quarter and Full-Year 2016 Financial Results," *PRNewswire*, February 13, 2017, <https://www.prnewswire.com/news-releases/endo-to-announce-fourth-quarter-and-full-year-2016-financial-results-300406024.html>, accessed on August 13, 2020.
- "Endo Reports Second Quarter 2016 Financial Results," *PRNewswire*, August 8, 2016, <https://www.prnewswire.com/news-releases/endo-reports-second-quarter-2016-financial-results-300310706.html>, accessed on August 13, 2020.
- "Filing Detail," *SEC*, <https://www.sec.gov/Archives/edgar/data/1593034/000159303417000005/0001593034-17-000005-index.htm>, (accessed on July 13, 2020).
- "Filing Detail," *SEC*, <https://www.sec.gov/Archives/edgar/data/1593034/000159303417000009/0001593034-17-000009-index.htm>, accessed on August 4, 2020
- "Form 10-K," *SEC*, <https://www.sec.gov/fast-answers/answers-form10k.htm>, accessed on August 5, 2020.
- "Form 10-Q," *SEC*, <https://www.sec.gov/fast-answers/answersform10q.htm>, accessed on August 5, 2020.
- "NASDAQ Composite" *NASDAQ*, <https://indexes.nasdaqomx.com/Index/Overview/COMP>, accessed on July 31, 2020.
- "NASDAQ Total Returns," *NASDAQ*, <https://www.nasdaq.com/market-activity/total-returns>, accessed on July 31, 2020.
- "S&P US Indices Methodology," *S&P Dow Jones Indices*, May 2020, <https://us.spindices.com/documents/methodologies/methodology-sp-us-indices.pdf>, accessed on July 31, 2020.
- "Trading Hours for the Nasdaq Stock Markets," *NASDAQ*, <https://www.nasdaq.com/stock-market-trading-hours-for-nasdaq>, accessed August 4, 2020
- ASC 350-20-35, *Financial Accounting Standards Board*, <https://asc.fasb.org/section&trid=2144453>, accessed on August 13, 2020.
- David McLaughlin and Caroline Chen, "U.S. Charges in Generic-Drug Probe to Be Filed by Year-End," *Bloomberg*, November 3, 2016.
- Endo Press Release, "ENDP - Q3 2016 Endo International PLC Earnings Call", *Thomson Reuters STREETEVENTS*, Edited Transcript, November 8, 2016.
- Endo Press Release, "ENDP - Q4 2016 Endo International PLC Earnings Call," *Thomson Reuters STREETEVENTS*, February 28, 2017, 1:30 PM GMT (8:30 AM ET).

Data

- *Refinitiv Thomson Reuters Eikon*.
 - *Tick Data*.
 - *S&P Capital IQ*.
-

In addition to the ones listed above, I relied upon all documents and sources listed in my report and exhibits.

ENDO'S DISCUSSIONS OF IMPAIRMENT CHARGES

Relevant excerpt from the February 28, 2017 earnings release and conference call

“The impairment charge was driven by a reduction in the expected future cash flows in the Generics reporting unit primarily due to a change in pricing expectations partly driven by an expected increased level of competition and increased buying power from the continued consolidation of the generic business customer base. These charges are primarily due to industry and competitive pressures in the sector, which resulted in a reduction of the Generics reporting unit’s fair value.”¹

“The Company’s revised forecast reflects a change in [outlook], primarily for its generics reporting unit, reflecting the quickly evolving new realities of the US generics external environment, as characterized by increased buying power from the continued consolidation of its customer base, increased levels of competition due to the new low cost competitors, and accelerated FDA ANDA approvals, and a change in the value derived from estimated future pricing levels. All of these factors, coupled with increases in the risk factor included in the discount rate used to calculate the discounted cash flows, have driven a material decrease in the estimated fair value of our generics reporting unit, and certain intangible assets. This change in the estimated implied fair value led to the majority of the impairment charges recorded in the fourth quarter.”²

Relevant excerpt from the March 1, 2017 Form 10-K

“The impairments were a result of a combination of factors, including increased buying power from the continued consolidation of the Company’s generic business customer base, a significant change in the value derived from the level and frequency of anticipated pricing opportunities in the future and increased levels of competition, particularly in the Company’s U.S. Generics reporting unit, due to the entry of new low cost competitors and accelerated FDA ANDA approvals. Consequently, the Company lowered its projected revenue growth rates and profitability levels as part of its fourth quarter company-wide strategic forecasting process. These external dynamics were exacerbated by an increase in the risk factor included in the discount rate used to calculate the U.S. Generics

¹ Endo Earnings Release, February 28, 2017.

² Endo Earnings Call, February 28, 2017, p. 6.

discounted cash flows from the date of the Company's last interim test. The increase in the discount rate was due to the implied control premium resulting from recent trading values of the Company's stock. On a combined basis, these factors reduced the resulting estimated fair value of the Company's reporting units."³

"In order to assess the reasonableness of the calculated fair values of our reporting units, we also compare the sum of the reporting units' fair values to Endo's market capitalization and calculate an implied control premium (the excess sum of the reporting unit's fair values over the market capitalization) or an implied control discount (the excess sum of total invested capital over the sum of the reporting unit's fair values). The Company evaluates the implied control premium or discount by comparing it to control premiums or discounts of recent comparable market transactions, as applicable. If the control premium or discount is not reasonable in light of comparable recent transactions, or recent movements in the Company's share price, we reevaluate the fair value estimates of the reporting units by adjusting discount rates and/or other assumptions. This re-evaluation could correlate to different implied fair values for certain or all of the Company's reporting units."⁴

"As a result of our annual goodwill test performed as of October 1st, 2016 [...] The Generics reporting unit represented \$2,342.5 million of the total goodwill charge. A 50 basis point increase in the assumed discount rate utilized or a 1% decrease in the annual growth rate would have increased our Generics reporting unit goodwill impairment charge by approximately \$440 million and \$400 million, respectively."⁵

³ Endo 2016 10-K, pp. F-40, F-41.

⁴ Endo 2016 10-K, p. 56.

⁵ Endo 2016 10-K, p. 56.

ILLUSTRATIVE EXAMPLE FOR MATERIALIZATION OF RISK

1. Consider an oil company that discloses the discovery of an oil field it believes may contain 1,000,000 barrels of oil.¹ At the time of this disclosure—say on day 1 of the Class Period—the oil company truthfully discloses that there is a 90% chance that the new oil field will yield 1,000,000 barrels of oil and a 10% chance that the oil field is dry and contains no oil. The oil price on this date is \$50/barrel. An efficient market would value the field at its expected value of \$45 million ($90\% \times 1,000,000 \text{ barrels} \times \$50/\text{barrel} + 10\% \times 0$). Let's further assume that at the end of the Class Period, based on new information from its exploration and evaluation team, the company learns that this field will yield no economically viable reserves, *i.e.*, the 10% risk that the field was dry materializes. The company now knows the field is worthless and discloses this fact to the market. In an efficient market (and assuming the price of oil did not change over the class period), the equity value will fall by \$45 million (in total) to reflect the loss in value. Note that this occurs even though there is no misrepresentation.

2. Assume now that the company's disclosure that there is 90% likelihood the oil field would yield 1,000,000 barrels *misrepresents* the true risk as known to the company at that time, and that the true likelihood of yielding 1,000,000 barrels was only 70% (so that there was a 30% chance of no oil). Based on the company's day 1 disclosure, the initial expected value remains at \$45 million, which would then also be the decline in value when it was later announced that there was no oil, *i.e.*, the reduction in value when the risk actually materialized would be the same whether or not the company had truthfully disclosed the risk on day 1. However, on day 1, the company's misrepresentation of the risk has created price inflation. Had the company disclosed the true risk associated with the oil field on that day (the counterfactual disclosure), the market would have valued the discovery at an expected value of \$35 million ($70\% \times 1,000,000 \text{ barrels} \times \$50/\text{barrel} + 30\% \times 0$). Because the market instead valued the oil field at \$45 million, the properly measured inflation associated with the understated risk was \$10 million on day 1 (the difference in expected values due to the 20% difference in risk of no oil). Thus, using the full price decline of \$45 million at the time the risk materialized, as a simplistic back-casting approach would do, substantially

¹ To keep the example simple, I describe inflation on an aggregate, as opposed to per-share, basis, but the concepts apply on a per-share basis as well.

overstates inflation – yielding estimated inflation of \$45 million versus the correctly measured \$10 million.

3. Assume that six months after the initial disclosure, on day 182 of the class period, nothing further has been revealed (i.e., the risk was still understated by 20%, the difference between the 10% number known to the market and the true 30% number known to the company). By this time, the price of oil had increased to \$60/barrel (which is public information, known to the market). The amount of inflation is now \$12 million, the difference between the value of the discovery priced by the market (which reflects the market's assessment, which is now $90\% \times 1,000,000 \text{ barrels} \times \$60/\text{barrel} = \$54 \text{ million}$) and the but-for value, assuming the truth was known to the market ($70\% \times 1,000,000 \text{ barrels} \times \$60/\text{barrel} = \$42 \text{ million}$). Thus, the amount of inflation changes from day 1 to day 182 due to factors that have nothing to do with the oil company or the truthfulness of its disclosures. For this reason as well, what is now a \$54 million decline in value when the company announces that the oil field is dry (the risk materializes) does not and cannot provide a reliable measure of the inflation at the end of the class period: correctly measured, inflation increased from \$10 million on day 1 to \$12 million on day 182 due to the change in external circumstances.

Endo International plc Intraday Price Movement 3/1/17



Source: *Refinitiv*; *Tick Data*; Endo International plc, Form 10-K for FY2016, filed on March 1, 2017; "Filing Detail," SEC, <https://www.sec.gov/Archives/edgar/data/1593034/000159303417000009/0001593034-17-000009-index.htm>, accessed on August 4, 2020; "Trading Hours for the Nasdaq Stock Markets," Nasdaq, <https://www.nasdaq.com/stock-market-trading-hours-for-nasdaq>, accessed on August 4, 2020

Note: All times presented in Eastern Time. Trades and respective prices have been volume weighted to the immediate second preceding the trade. Market hours are between 9:30 AM and 4:00 PM ET, inclusive. See, "Trading Hours for the Nasdaq Stock Markets," Nasdaq, <https://www.nasdaq.com/stock-market-trading-hours-for-nasdaq>, accessed on August 4, 2020

Endo International plc

Analyst Report Commentary on Non-Allegation Related News Topics^[1]

2/27/17 – 3/7/17

Date	Contributor	Headline	Non-Allegation Related News Topics Commentary
2/28/17	Barclays	4Q16 Earnings First Impressions	<p>“Although 4Q16 results were ahead of expectations, 2017 guidance came in below already diminished expectations coming into the quarter. [...] [Management] also stated that adjusted EPS [guidance] is significantly impacted by a higher adjusted tax rate and an anticipated increase in variable-rate interest expense; higher interest expense and tax represent significant variances versus our model.”</p> <p>“Additionally, we will look for an update on ENDP’s mesh liability could introduce upside or downside volatility to shares since it could either alleviate or stress the company’s cash flows.”</p>
2/28/17	Barclays	Quick Takeaways after the 4Q2016 Earnings Call	<p>“Although 2017 guidance was below expectations, management clearly presented a plan to continue to reshape their business [...] Importantly, they indicated that CFO is expected to lag EBITDA growth [...]”</p> <p>“Management indicated that the savings from their strategic review will be mostly allocated to paying down debt and the promotion of Xiaflex. Management also indicated that they expect to allocate nearly \$1B to pay for mesh liability claims in 2017. Management provided little color on this but did say that the number of claims increased from 800 to 9700.”</p>
2/28/17	Canaccord Genuity	Solid 4Q print and decent initial '17 guide; lack of flex leaves us on the sideline	<p>“Relatively clean print and guide, but tax is an important nuance to consider. Endo’s 2017 guidance considers an adjusted effective tax rate of 13-14% while the Street has generally modeled a low-single-digit cash tax rate in their P&Ls. We estimates (sic) this difference represents around 45c to 2017 guidance, effectively bringing guidance to just under Street estimates, evidenced by an EBITDA guide of \$1.50 bn to \$1.58 bn, just under consensus EBITDA of \$1.585 bn. Given Endo’s leverage and investor focus on deleverage, we believe EBITDA is the best metric to evaluate the company’s periodic performance going forward.”</p> <p>“Today, Endo’s management stressed several times that the company’s transformation and emergence out from under mesh and debt burdens will take time but (understandably) would not give concrete timelines on meeting leverage targets. We’re excited about the Endo story evolving over time and believe that the right disciplined team is in place to address the company’s needs.”</p>

Endo International plc

Analyst Report Commentary on Non-Allegation Related News Topics^[1]

2/27/17 – 3/7/17

Date	Contributor	Headline	Non-Allegation Related News Topics Commentary
2/28/17	Cowen and Co	Thesis Is Unchanged - Better Alternatives Exist	“[...] [T]his reduced operating level is simply not generating enough meaningful cash to make substantial debt retirement in the face of still significant mesh liability payments and potential future accruals. With the amount of leverage that still remains, and although we believe the debt holders are very safe, we believe the equity holders will continue to suffer in what seemingly remains a value trap.”
2/28/17	Goldman Sachs	Endo International Plc (ENDP): First take: 4Q ahead but 2017 guidance mixed - weak revenue helped by stronger GM; cash flow light	<p>“The EPS guidance weakness (\$3.45-3.75 vs GS/consensus of \$4.31/\$4.27) is driven by higher interest expense (\$470mn-\$480mn vs our \$433mn/\$424mn) and effective tax rate (13-14% vs GS/consensus of 9%/7%), while ENDP’s cash tax rate is expected to remain in the low single digit percentage range.”</p> <p>“Cash flow prior to debt payment of \$200mn-\$280mn is weaker than our \$611mn estimate and contemplates \$975mn of mesh related consideration versus our \$450mn estimate.”</p>
2/28/17	JMP	Strong Quarter, Sub-Par Guidance; Transparency Keeps Us Positive	<p>“A higher tax rate and interest expense will negatively affect 2017, in addition to continued erosion of the pain and generic franchises.”</p> <p>“The company generated only \$81M in cash in 4Q16 with the help of minimal debt or mesh payments. Current net debt/EBITDA of 4.6x is expected to remain the same, or possibly increase in 2017, suggesting that very little debt will be retired in 2017. The company showed minimal working capital on the balance sheet in 4Q16 and expects only \$200-280M in cash flow in 2017. Rising interest rates in the U.S. and a higher corporate tax rate will also pressure earnings.”</p>
2/28/17	JP Morgan	Qtrly Beat with Mixed 2017 Update; Continue to See Long Road to Recovery - ALERT	<p>“Mixed 2017 guidance with revenue/EPS below but adj. EBITDA largely in line with expectations.”</p> <p>“While we will listen for more color on the call regarding revenue drivers, a big portion of the EPS miss is driven by higher interest expense (~\$475mn guide vs. our current estimate of ~\$433mn due to an increase in variable-rate interest expense) and tax rate (13-14% vs. our estimate of ~9%, although the cash tax rate remains in the low-single digits).”</p>

Endo International plc

Analyst Report Commentary on Non-Allegation Related News Topics^[1]

2/27/17 – 3/7/17

Date	Contributor	Headline	Non-Allegation Related News Topics Commentary
2/28/17	Mizuho	2017 Reset Underway Post 4Q:16 Beat	"Some unexpected negatives in the guidance include higher tax rate, higher interest expense, and higher OpEx, offset by better than expected gross margins."
2/28/17	Raymond James	What a Tangled Mesh We Weave; 2017 Outlook "Good Enough" Given Share Price	"[...] Unsettled mesh claims have climbed to nearly 10,000, a potential ~\$600.0M additional liability based on historical settlement rates. While game plan remains to delever to 3.0x-4.0x, remaining \$1.0B mesh liability balance and potential for added claims could push realization of this target out to 2019."
2/28/17	Stifel	Quick Take on 4Q16 ENDP Results	"EPS [guidance] is also being impacted by higher interest costs and effective tax."
2/28/17	Stifel	Streamlining Commences with Sale of Litha, Refocusing in 2017	"EPS was also impacted by higher interest costs and effective tax rate. ENDP also has commenced divesting assets, with the sale of Litha for \$100mn. While simplifying the business, we do not expect this will give much flexibility in addressing its leverage position (4.6x)."
2/28/17	Bank of America Merrill Lynch	Solid Q, risk/reward favorable for 2017; reiterate Buy	<p>"We view ENDP's new outlook as achievable and believe positive stock price reaction is a sign that investors are relatively comfortable with ENDP's ability to execute against the 2017 target [...] [T]he majority of the delta vs our model [...] was due to higher variable interest expense and effective tax rate; ENDP's 2017 adj. EBITDA outlook was largely in-line with consensus."</p> <p>"We now model higher variable interest rate and are increasing our tax rate assumption for 2017."</p>
3/1/17	Barclays	Base pressures	"Management announced the sale of Litha, their South African subsidiary, and signaled to investors that they are also looking at options for Somar, their Mexican unit. The refocusing is welcome but we doubt the proceeds will make a meaningful dent in ENDP's debt load. Cash flow will remain under pressure in '17 at ~\$250M & mesh liability won't go away with unresolved claim increasing from 8,000 to 9,700."

Endo International plc

Analyst Report Commentary on Non-Allegation Related News Topics^[1]

2/27/17 – 3/7/17

Date	Contributor	Headline	Non-Allegation Related News Topics Commentary
3/1/17	Gabelli & Co	Hitting the Reset Button for 2017 – Buy	<p>“For 2017, the company anticipates \$200-280M of cash flow after mesh settlement payments that could be used for debt repayment.”</p> <p>“We are resetting our estimates for Endo to reflect the company’s new operating structure and guidance (including higher interest and tax rate).”</p>
3/1/17	Goldman Sachs	Outlook brings multiple moving parts but key challenges remain	<p>“We cut estimates post the update (Exhibit 1) and maintain our Neutral rating as ENDP’s key challenges remain; deleveraging will take time given declining earnings and muted cash flow. From here, we therefore focus on key swing factors for the model, including (1) mesh liabilities, which remain a meaningful FCF headwind given \$975 mn in 2017 considerations, and an increase in unresolved claims to 9.7K from 8K, (2) final impact from ongoing consortium negotiations, which, while included in guidance, do not actually complete until mid-year, and (3) brand and generic pipeline with 20 new generic launches and Xiaflex Ph3 in cellulite on deck for 2017.”</p>
3/1/17	JP Morgan	Thoughts Post 4Q-2017 Outlook Appears Conservative But Leverage Concerns Persist	<p>“Notably, we see a lack of visibility on the medium- to long-term outlook with limited ability to delever in 2017 due to mesh payments and we estimate 2018 as another negative growth year for the company.”</p> <p>“We are updating our model following 4Q results and lowering 2017+ estimates on lower sales, and higher interest expense and tax, offset by a stronger margin profile.”</p>
3/1/17	Susquehanna Financial Group	Endo International: Outlook Points To Ability To Sustain Business	<p>“Leverage remains at ~4.6x with limited room for debt repayment in 2017 given known mesh payments (\$690mln) and some additional legal, milestone, and other cash items. Looking beyond 2017, we see deleveraging as a tailwind and asset sales could accelerate that a bit. Additional mesh provisions are a risk (~9,700 potl. cases unprovisioned) but we assume these can be resolved with less cost than earlier cases.”</p> <p>“EPS [guidance] falls to \$3.58 (around the midpoint) due to higher interest expense and effective tax (although cash tax should be modest).”</p>

Endo International plc

Analyst Report Commentary on Non-Allegation Related News Topics^[1]

2/27/17 – 3/7/17

Date	Contributor	Headline	Non-Allegation Related News Topics Commentary
3/2/17	BMO Capital Markets	Lowering Numbers to Reflect Cautious Guide as Generic Pressures Persist	“Significant mesh payments will hold back cash flow and limit debt paydown (net leverage 4.6x and should still be in high 4s at YE).”
3/2/17	Deutsche Bank	2017 a transition year	<p>“[T]he company aspires to reduce net leverage to 3-4x (from 4.6x) but did not provide a timeframe given various uncertainties[.]”</p> <p>“ENDP did not increase its accrual for mesh liability, but did provide a higher estimate for potential cases not yet accrued for (~9.7k, up from ~8k).”</p>
3/2/17	JP Morgan	Specialty Pharma / Generics: 4Q16 Wrap Up: Challenging Environment Persists; MYL, AKRX Remain Best Positioned	“[...] [T]here is a limited visibility in the company’s medium- to long-term outlook and an inability to meaningfully delever in 2017 and into 2018 due to mesh payments and declining EBITDA.”

Source: Analyst Reports Received from Counsel; *S&P Capital IQ*; *Thomson Reuters*

Note:

[1] Includes commentary of analyst reports issued during the period from the trading day before 2/28/17 through five trading days after 2/28/17.

Endo International plc
Selected Financial Metrics
2014 – 2017
(\$ in millions)

	2014	2015	2016	2017
Total Revenue	\$2,877	\$3,269	\$4,010	\$3,469
Total Debt ^[1]	\$4,358	\$8,580	\$8,273	\$8,276
Total Debt ^[1] / Market Value of Equity ^[2]	0.39	0.62	2.25	4.78
Total Debt ^[1] / Capitalization ^[3]	0.28	0.38	0.69	0.83
Total Debt ^[1] / Total Assets	0.40	0.44	0.58	0.71
Total Debt ^[1] / EBITDA	6.00	11.25	13.88	11.10
Interest Coverage ^[4]	2.6	1.7	1.0	1.3

Source: *Refinitiv*; *S&P Capital IQ*; Endo Form 10-K for Fiscal Years 2014 – 2017

Note:

[1] Total Debt represents the book value of debt, calculated as the sum of current portion of long-term debt and long-term debt, less current portion, net, items on Endo's consolidated balance sheet.

[2] Market Value of Equity is calculated as Endo's share price multiplied by its shares outstanding as of the end of the fiscal year.

[3] Capitalization is calculated as the sum of Total Debt and Market Value of Equity.

[4] Interest Coverage is calculated as operating income divided by interest expense, as reported by Capital IQ. Capital IQ calculates operating income by subtracting cost of goods sold, selling, general, and administrative expenses, research and development expenses, and other operating expenses from total revenue. Capital IQ's calculation does not reflect one-time charges like acquisition-related and integration items, included in the operating income reported in Endo's 10-K.